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Abstract Journal of the Route of Lieutenant A. Cunningham, Bengal Engineers, to the Sources of the Punjab Rivers.

From Tandee on the Chundra Bhaga river, where I parted with Lieutenant Broome, I continued my way along the right bank of the river, with the proud consciousness that I was the first European who had ever visited that part of the Chundra Bhaga. On the 16th of July, 1839, at sixteen miles below Tandee, I crossed the river by a wooden bridge called *Rocha*, or the 'Great' Bridge, 85 feet long and 43 feet above the stream, to the left bank, where I once more came upon fir trees which I had not seen for a week. After a walk of two miles over a dusty bad pathway, I had to climb a steep hill on which the celebrated temple of Triloknath is situated. On the road I passed a Hindoo Pilgrim, a Gosain, who had come from Sunam in the protected Sikh States, having visited Jwala Mookhee near Kangra, and the various hot wells at the head of the Parbuttee river.-

The temple, which is situated at one end of the village of Goonda, is square, and is surmounted by the *trisoal* or trident of Siva, who is Triloknath, or, The Lord of the three worlds, Heaven, Earth, and Hell. There was an open Court to the front with a two-storied verandah of wood; the pillars, architectraves, and rails being all richly carved. In the middle of the Court there was a block of stone about 6 feet square by 5 feet high, on the top of which was growing the sacred plant *Toolsee*, or Basil. The figure of Triloknath was of white marble, about two feet

high, with six arms ; on its head there was placed a small squatted Buddhistical looking figure which the attendant Brahmin declared to be of Anna Pooroos, probably meaning Anna Purna, the beneficent form of Parvati, the wife of Siva. In the Court there were many tall poles surmounted by cow's tails and pieces of cloth, placed there as offerings, by Tibetan Buddhists as well as by Brahminical Hindoos.

The village of Toonda in which the Temple of Triloknath is situated, had been overwhelmed in snow in the preceding year, 1838, when all the houses which had not been bonded with wood, had fallen down, and killed the inhabitants. The Rana or Chief of Toonda Triloknath is under the authority of the Rajah of Chumba, to which state the lower portion of Lahul belongs.

The province of Lahul embraces the whole breadth of the Chundra and Bhaga rivers, and extends down their united streams called the Chundra Bhaga in a W. N. W. direction to about ten miles below Triloknath. It is divided into two unequal parts ; the larger belonging to the state of Kooloo, and the smaller to Chumba. In the former there were 108 villages, containing 740 houses, and 3,764 inhabitants.

The revenue of the province is derived from two different sources ; a house tax, and a duty on the carriage of merchandize. Under the Rajah's administration each house was taxed at 10 and 12 rupees, but the Sikh Government increased the tax to twenty rupees per house, by which they raised the collections from 5,000 to 10,000 rupees per annum, the houses of the priests and poorer labourers being exempted from taxation. The rates of toll were at the same time adjusted by Zurawur Singh, the governor of Ladakh, the duty upon each carriage sheep being raised from half an anna (or three farthings) to four annas, (or six pence.) This was considered very oppressive by the people, but as a sheep can carry 8 and 10 seers, or one fourth of a man's load, the fair and natural rate of duty would be to charge one fourth of the duty levied upon each man ; and Zurawur Singh did no more, for a man is charged one rupee. On a pony which carries from 60 to 70 seers, or double the load of a man, the duty levied is likewise double or two rupees per pony.

The grain raised in Lahul is all consumed in the country ; and as there are no natural productions, the house tax is paid by the inhabitants from the joint Stock, obtained by hiring themselves as porters between the states in the lower hills of the Punjab and Ladakh ; the porters who bring goods from Kooloo, Mundee and Chumba being changed at Tandee for natives of the province itself, who receive 6 rupees cash, for the journey to Ladakh. The hire of a pony to Ladakh is 12 rupees.

The articles taken to Ladakh are :—wheat and rice from Chumba ; Iron and Opium from Mundeë ; coarse white cottons, and Benares brocades of the worst quality from Kooloo ; with goats skins dyed red, chiefly manufactured at Bissowlee and Noorpoor in the Punjab—in exchange for which the following articles are brought to Tandee to be sold to the merchants of the neighbouring states. Shawl Wool ; Bang, or Hemp prepared for smoking ; silver in wedges, each wedge called Yamoo, weighing 180 rupees or $4\frac{1}{2}$ lbs. avoirdupois ; Borax, native of Ladakh ; Salt, manufactured at some Salt lakes beyond Ladakh ; and Tea, brought from Yarkund.

For the two previous years, however, but little trade has passed through Lahul, on account of the seizure of Ladakh by the Jummoo family, who have established a high road through their own territory of Jummoo, which throws all the duties upon the traffic into their power. The route runs from Jummoo, through Chinénee and Bhudurivar, both in Forster's route to Kishtwar, and thence to Chutogurh and Ladakh. The whole of these places, and consequently the entire route, are in the possession either of Gulab Singh or of his brother, Dheean Singh.

The consequence of this change in the direction of the commerce had been so prejudicial to Lahul, that about 500 people had emigrated to other countries ; and many more would have followed them had they not been stopped at the Custom houses established on all the passes leading from Lahul. Another consequence of this interruption of the traffic had been that very little or no Salt had come to Lahul, for the two preceding years ; and of this the people complained bitterly, as well as of the loss of their hire as porters between the lower hills of the Punjab and Ladakh. Many of them were literally starving, having nothing to eat, except grass, willow leaves, and strawberries. Even the attendant Brahmin of the holy temple of Triloknath was glad to get the remains of my Mahomedan Munshi's dinner.

There are four passes leading from Lahul into Chumba, all of which were described as equally bad. Of these the Dogee Pass leads from the village of Ruppoo, about 8 miles below Tandee, over the snow, and down the course of the Boodhil river to Burmáwar. The other passes lead from Triloknath. The upper one is called the Bugga Pass and leads direct to Burmáwar ; the lower is the Humguree Pass, and is very little used, and the middle is the Kalee Joth, or Pass of Kalee Débee, which I chose.

On the 18th of July, I quitted Triloknath, and on the following evening reached the foot of the Kalee Débee Pass, so named from a

black conical peak to the South, dedicated to Kálee Débee. The place was called Hoolyas, in Sanskrit Hoolyasaca, and was merely a resting place at the foot of the pass; there I shot some snow pheasants and Alpine Hares. On the following morning I began the ascent of the pass up steep banks of loose angular masses of rock, and over sloping snow beds, down which fragments of rock came bounding and dashing along with a crash like the rattling of continued and numerous file-firing. The porter who carried my iron tentpegs was struck on the knee by one of these stones, and hurled before my eyes down the sloping indurated snow. Luckily the snow bed terminated in a fork between two mounds of broken fragments of rock, and there the man's further progress was stopped, and his life saved. He was lame however for three weeks afterwards. The crest of the pass was a narrow ridge not more than ten and twelve feet wide, covered with soft and newly fallen snow. There I spread my cloak and found by my thermometer that the height was 15,700 feet. In the middle of the ridge there were two small slabs erect and smeared with vermilion, near which were numerous sticks covered with rags. For a few minutes I had a splendid view of the green hills of Chumba smiling in the distance. A thick haze then descended and obscured even the terrific gulph below, and I commenced the descent without seeing where I was to halt for the night. A goat was sacrificed by my servants to the Goddess Kálee, and to that they attributed my safety as well as their own. The descent was 5,000 feet to the spot where I halted, at the head of the Nye river, one of the principal tributaries of the Ravee.

On the 21st of July, I continued my journey, following the course of the Nye river for seven miles to the village of Loondee, below which I crossed the river and halted at the Dhurmsala, or traveller's house. The next day I reached Burgaon, a large village on the left bank of the Nye, and was much cheered with the sight of a mulberry tree; and there I got some good wheat flour, some excellent milk, and fine honey. On the 24th I passed through Footahun, below which the Nye and Boodhil rivers join the Ravee, to Poolnee; and ascending the Boodhil river for five miles I crossed it by a very respectable wooden bridge, 68 feet in length and 98 feet above the river, with a railing, knee high, on each side. There I saw wild grapes and mulberries just beginning to ripen—and continuing my journey for an ascent of 1,500 feet, I reached Burmawar, or Vermmawura, the ancient Capital of the Verma family of Chumba, 7,015 feet above the sea. The spot was a beautiful one; but the severity of the winter had no doubt led to its being abandoned as a capital for

several centuries. The tall spires of the stone temples, and the profusely carved wooden temples were completely shaded by cedar and walnut trees. One Cedar was 20 feet in circumference. There were numerous stone pillars, tradition said 84, dedicated to Siva; and a large brazen bull, the size of life, under a wooden shed, besides several travellers' houses. The figures in the temples were of brass and exceedingly well executed, all bespeaking a very ancient origin. I copied three Sanscrit inscriptions from the brazen figures, recording the names and families of the donors.

On the 29th of July, I left Burmawur, and at four miles reached the village of Khunn, opposite Tootahun, where the Nye and Boodhil rivers join the Ravee. From thence the road descended for 1,500 feet to the Ravee, which was rushing between steep cliffs of black clay slate; I crossed it by a birchen rope bridge 116½ feet span and 60 feet above the water: the points of suspension were at different heights, and the fall of the curve in the middle was 20 feet, which made the ascent and descent extremely difficult and dangerous. From the bridge, I had to scramble amongst loose stones, and up steep banks for an ascent of 2,000 feet in a distance of two miles, when I reached Woolas, on the left bank of the Ravee, opposite Khunn and Tootahun, at the junction of the three rivers, which I was surprised to find was not considered holy. The three streams were about equal in size; but the Boodhil is the one held in most esteem, as one of its sources is in the holy lake of Munnee Muleés—its other principal source is from the Dogee Pass, on the road from Tandee to Burmawur. The Nye River has its principal source in the Kalee Débee Pass; but a considerable feeder called the Raim River, joins it from the Bugga Pass. The Ravee itself rises in Kooloo from the Bungall Mountain, and runs in a N. W. direction to Woolas, where it is joined by the Nye and Boodhil.

From Woolas, I followed what is called the royal road, or that used by the Rajahs of Chumba when they make their pilgrimages to Munna Muhe's. It was one day's journey out of the way, but as it ascended the higher spires of the mountains, I chose it for the sake of the more extensive view, which I should obtain, and for the sake of the survey, which I was making. In three days, I reached Chaitraree, where was a temple to Sugget Débee. The figure was of brass with four arms; and on the pedestal was an inscription, recording the donor's name, which I copied. On the next day, I reached Bussoo, and on the following day Mahila; and on the 4th of August, I crossed the Ranee by a birchen rope bridge of 169 feet long, stretching from an isolated rock on the bank to the Cliff

opposite, and reached Chumba, the Capital of the state of the same name.

Chumba, or Chumpapoor, the Capital of Chumba is situated on a level piece of ground on the right bank of the Ravee, at an elevation of 3,015-feet. There is a tradition that the river formerly covered the Chaugaun or plain of Chumba; which is certainly correct, for the plain is formed of large boulders of slate and granite, mingled with rich earth above, and with coarse sand below. There are nine good temples in Chumba; none of them, however of such beautiful workmanship as those at Burmawar. The Rajah's Palace is an extensive building, but it cannot boast of any beauty. The houses are not different from those usually seen in the hills; and I was altogether much disappointed with Chumba.

Of seventeen purgunnahs, through which I passed I have a detailed account of all the different villages, amounting to 258, containing 1,672 houses, and 8,849 inhabitants. These seventeen Purgunnahs form about one-eighth of the whole country; which must, therefore contain, with the addition of 800 houses, and 7,000 inhabitants in Chumba town, 14,176 houses, and 77,792 inhabitants. The villages on the lower course of the Ravee are however much larger than those upon the higher streams, and I am therefore inclined to rate the population at nearly 100,000; of whom perhaps 10,000 may be exempt from paying the house tax—the remainder, 90,000, living in 12,500 houses, will give a revenue of 2,50,000 rupees, if taxed as usual at 20 rupees per house.

The trade through Chumba, formerly considerable, is now very little, owing to the opening of the new route, through Jummao; Customs are, however, collected at Bhudewar, which forms the North Western boundary of Chumba, and through which merchants occasionally pass, and merchants who come to Chumba, sometimes carry goods by the Sakh Pass and Chutegurh to Ladakh; but the traffic is comparatively trifling; and I do not therefore value the amount of Customs collected at more than 50,000 Rs. yearly, making a total revenue of 3 lakhs of rupees, or £30,000.

There are no natural productions exported from Chumba, save rice and wheat to Ladakh; and the manufactures are considerable: the principal are thick woollens called Burmawur, manufactured in pieces eleven yards long, and fifteen inches wide, in all the colder parts of Chumba. Some are carried to Kooloo for sale, and I have seen a few pieces at Simla. Coarse Alwans, or Shawl Cloths, are made in the town of Chumba from Ladakh Wool, but they are all used in the country.

The men wear a long sleeved white woollen cloak, fastened round the waist with a black woollen rope; and on the head a peculiar peaked cap

of thick white woollen; the women wear the same cloak, only black, with a white rope round the waist; and a small scull cap on the head—the men's dress is a very picturesque one.

From the Rajah's Pundit I obtained a long list of the Rajahs of Chumba, beginning with Brahma of course, and descending through the Surajvansa to Sumitra, after whom the list appears to be less apocryphal. The earlier Rajahs are said to have resided in Burmawar.

On the 11th of August I quitted Chumba, crossing the Ravee immediately above the town by a birchen rope suspension bridge, of 187 feet span; and with much difficulty made my way to the village of Kurédh. One of my porters in crossing the small stream, now swollen by rain, lost his footing and was drowned. On the 13th I reached the summit of the pass of Chuarhoo, 8,041 feet high, from which I saw the plains of the Punjab indistinctly through the clouds. In the evening I reached the large Village of Chuarhee, where I halted. On the following day I made a fatiguing march of $4\frac{1}{2}$ miles to Jajeree, on the bank of the Chukkee River, over several high ridges of stiff gravelly conglomerate, alternating in strata with sandstone. The next day I crossed the Chukkee River with some difficulty, by swimming. It was 200 feet across and about 5 feet deep in the middle, and the rounded boulders at the bottom afforded no footing whatever; after a little ascent and descent I came upon a large open plain, which I crossed to Noorpoor.

Noorpoor is a fine flourishing city, 1,924 feet in height, built upon a narrow ridge of a sandstone rock, curving to the North; the houses are chiefly of squared stone; and the main street runs over the solid rock. The city was founded upwards of two hundred years ago by the celebrated Noor Jehan, the beautiful empress, who established a number of Kashmerians in it. In 1839 there were said to be 7,000 Kashmerians in Noorpoor, who were chiefly employed in the manufacture of Shawls. I saw many of the Shawls, which were decidedly inferior to the real Kashmerian Shawls, this was attributed to the difficulty of getting the finest wool. The Noorpoor shawls are however of very fair workmanship, and they are brought in great numbers to Simla, Delhi, Lucknow, Benares, and Calcutta.

On the 18th of August I left Noorpoor, and crossing the Chukkee River, I reached Puthankot in the plains of the Punjab at an elevation of 1,205 feet above the sea. From thence I passed through Shujanpoor, a good sized straggling town, and crossing the Umritsir and Lahore Canal near its head, I reached the bank of the Ravee, which was nearly a mile in width. The passage was made in about an hour by boat, and I halted

at a large straggling town called Ruttooa, from that passing through Heeranugur, Chunghee Marhee, Mudwar Harmunder, Rarha, and Pullee, I reached the bank of the Tohi, the Jummoo River which was rushing along deep and red, having been swollen by heavy rain in the lower hills. There I was detained until the evening, as no boatman even with a bribe would venture his boat in the rapid current. At Jummoo I occupied an upper room in a gateway prepared for reception by Golab Singh's eldest son, Oodhum Singh, who was lately killed at Lahore.

The town of Jummoo is about the same size as Noorpoor, but it contains fewer inhabitants, as there are no two storied houses in it. A few Shawls are manufactured at Jummoo, but they are made to order and not for general sale. Rajah Oodhum Singh treated me kindly enough; but my servants were watched, and I was unable to procure any information of value, I therefore quitted Jummoo as quickly as possible, and crossed the Chenab river 10 miles below Aknoor, near where Taimoor had crossed it. The main stream was 920 yards wide, rolling swiftly on with a strong current. There were besides six other channels, some of them breast deep, and all having a rapid stream; and beyond these was the river Tohi, which, rising in the Rutun Punjall mountains, flows by Rajaoree, and joins the Chenab above Wazeerabad. It must have been between this river and the Chenab that Alexander had pitched his camp about the same season of the year; for Arrian says, 'The flat country is also often overflowed by rains in summer, insomuch that the River Acesines, having at that season laid all the adjacent plains under water, Alexander's army was forced to decamp from its banks, and pitch their tents at a great distance.'

The Tohi, frequently also called Toh, is, I have no doubt, the Tutapus of Arrian, a great river, which falls into the Acesines, for the Tohi of Rajavree runs in a direct line upwards of 80 miles, and where I crossed it near Mumaivur, at the same season in which Alexander had seen it, it was a great river running deep and red. It was full of quicksands, and the passage was dangerous as well as tedious. On the 3rd of September I reached Bheembur, at the foot of the mountains on the Royal Mogul road to Kashmere.

On the 5th I proceeded to scale, what Bermier called that 'frightful wall of the world,' the 'Adi Duk' or first range of mountains. On the top of the pass I saw a gibbet with two cages containing the skull of Thums and his nephew, the chiefs of Poonch, who had for a long time resisted the encroachments of the Jummoo family. A price was set upon their heads by Goolab Singh, but from their known bravery no one dared

attack them openly ; and they were at last killed, while asleep, and their heads carried to Goolab Singh, who ordered them to be suspended on the crest of the Bheembur pass. The next day I crossed the 'Kumaon Gosha' mountains, or 'sharp ridged bow,' the range being narrow at the top and bent at each end like a bow. Thence passing through the Serais of Noshehra, Inayutpoora, Chungez, and Muradpoor, I reached Rajaoree on the 8th of September. The Rajah was very attentive and communicative, and I received much interesting information from him. I also procured a history of the country, and some orders by Aurngzebe, and Nadir Shah ; besides a copy of a grant of the Rajaoree territory, by Bahadoor Shah ; since then the territory has been seized bit by bit by the Jummo family, until only a small circle of 20 miles diameter now remains to the present Rajah.

In the grant given by Bahadoor Shah, the revenue of Rajasore is stated to be 77,77,960 dāms, equivalent to 27,799 Rupees, which with the Customs collected, must have been increased to 50,000 rupees. The territory now is about one fourth of what it was at that time, A. D. 1708, and the Customs have nearly ceased, as the Sikhs give free passes for all their own merchandize ; the present revenue cannot therefore be more than 10,000 rupees, which was the sum stated to me by many respectable natives.

The chief crops in Rajaoree were rice and maize ; the maize invariably occupies the higher grounds, and the rice fields the level alluvial formations along the river ; these were kept constantly flooded by streams conducted along the hill sides from the neighbouring torrents. Height of the city, 2,800 feet.

The hills between Bheembur and Rutun Punjall are all of a coarse greyish sandstone, alternating with loose gravelly conglomerates near Bheembur, and gradually changing into a siliceous state in the Rutun Punjall range,—at the foot of which there are large blocks of conglomerate in compact masses cemented firmly together.

I left Rajaoree on the 10th of September, and after an easy march of eight miles over a stony road, I reached Thunna ;—from whence to the crest of the Rutun Punjall the road was good, but steep. The crest of the pass, I found to be 7,350 feet in height ; from whence there was a noble and extensive view, over the low hills of Rajaoree, of the distant plains of the Punjab. From thence the descent was through a thickly wooded forest of walnut, elm, horse chesnut, and pine trees to the bank of the Bahramgulla river, which I crossed by a bridge, and proceeding up one of its tributaries, I halted at Chundee-murg. Rain had fallen heavily for some days previously, and the small stream had swept away

all its bridges, so that I had some difficulty in making the numerous crossings, which the road took. One of my goats was swept away by the rapidity of the current. The ascent of the Peer Panjall was extremely steep, but the road was good and wide, having been repaired by order of the Sikh Government. My thermometer gave 11,224 feet as the height of the crest of Peer Panjall Pass. From thence the road was a gradual descent for $2\frac{1}{2}$ miles to the Serai Aliabad, built by Ali Murdan Khan; height 9,812 feet. A little below Aliabad the road was narrow, but quite safe, a parapet wall having been built on its outer edge overhanging the torrent below. The place is called Lala Ghulam, after a slave who superintended the work, and whom Ali Murdan is said to have afterwards sacrificed and buried there. Beyond that, the road was good and broad, occasionally ascending and descending to an open piece of ground, called Doojan, below which I crossed the torrent and proceeded along a level pathway to the Serai of Heerpoor. The next day I passed through Shooppyen, and crossed the Shooppyen river, reached Ramoo ke Serai, where I halted; and the next day, 15th of September, I entered Kashmere city, having been three months and two days from Simla.

The city of Kashmere is situated on both sides of the river Behut, at an elevation of 5,046 feet above the sea. I am aware that Baron Hugel made the height 6,300 feet, but Jacquemont calls it 5,246, and Moorcroft says, that the *general* level of the valley is about 5,000 feet. It is of an irregular shape, the greater part being on the right bank of the river; about one fourth of the houses are deserted; but the city must still contain about 80,000 inhabitants.

The information which I have collected regarding Kashmere is not yet completely arranged, so that I cannot give any general results. I may state, however, that I have a list of all the villages in the valley; a minute account of all the passes, including those which are used only for contraband trade; the history of the Shawl Wool from its first starting from Radakh and Khantan (or Changtang) to its arrival in Kashmere, where it is spun into thread, dyed, and woven into Shawls. I have besides ten or twelve specimens of Kashmerian songs translated into English verse; and a very good collection of the coins of the Hindoo Rajahs of Kashmere preceding the Mussulman conquest.

Additions made to the Geography.

I will conclude with stating the additions, which the joint travels of Lieutenant Broome and myself have made to the Geography of the Alpine Punjab.

Of the Sutluj.

1. The whole course of the Spiti river, one of the principal branches of the Sutluj, has been surveyed by Lieut. Broome.

Of the Beas.

2. The whole course of the Teerthun river, one of the principal feeders of the Beas, has been jointly surveyed as well as the Beas river itself, from its source to its junction of the Teerthun river, in addition to which, the mountain course of the Chukkee river has been laid down by Lieut. Cunningham.

Of the Ravee.

3. The whole course of the Nye river, with a portion of the Boodhil river, and also of the upper Ravee, with the further course of the Ravee, after the junction of the Nye and Boodhil rivers as far as Chumba, have been surveyed by Lieutenant Cunningham.

Of the Chenab.

4. The whole course of the Bhaga river, has been surveyed by Lieutenant Broome; the source of the Chundra by the same officer, and the greater part of its course jointly by Lieutenants Broome and Cunningham; and the course of the joint stream of the Chundra Bhaga, as far as Triloknath, by Lieutenant Cunningham. The greater part of the course of the Tohi river, a principal feeder of the Chenab, has likewise been surveyed by the same officer.

Of the Thelum.

The Shoopyen river, which rises in the Peer Punjall, has been surveyed by Lieutenant Cunningham.

Of the Indus.

The source of the Yunam Choo, or Yunam river, a large tributary of the Indus, has been laid down by Lieutenant Broome.

(Signed) ALEXANDER CUNNINGHAM.

1st Lieutenant of Engineers.

Lucknow, 8th February, 1841.

Extracts from Demi-Official Reports.—By Capt. ARTHUR CONOLLY on a Mission into Khorasan, (communicated to the Editor from the Political Secretariat.)

The Huzarah and Eimauk Country which we traversed between Bameean and Meimunna, consists of high unwooded mountains, covered with grass and various shrubs and herbs which serve for spring and summer pasture, and winter fodder, and vallies at different elevations, in the highest of which is grown only the naked Thibetan barley, and in the lowest barley, wheat, and millet.

The Huzarah portion is the coldest and poorest, and the natives with difficulty eke out a living from its natural resources; living in small villages of low huts where they herd during the long winter season under one roof with their cows and sheep, and using as fuel small dry shrubs and the dung of their cattle. An idea of their privations may be formed from the fact that the most of the people do not use *salt*. There is none in their own country, and as they cannot afford the price which would remunerate importers of this heavy article from Tartary and Afghanistan, they have learned to do without it. Their best bread is consequently very tasteless to a stranger.

But the Huzarahs are not allowed to enjoy even their limited means of existence in peace, for the Oosbeks make occasional inroads upon their dwelling places, and sweep away whole villages into slavery, leaving fertile spots desolate. Their neighbours, but religious enemies, the Eimaucs, also carry off as many of them as they can, from time to time, conquer or kidnap, and the chiefs of their own race, steal each other's subjects in their petty wars, exporting all they can thus obtain, through Toorkish merchants with whom they have understanding.

We found the Huzarah people unblushing beggars and thieves, but they are mild mannered and industrious, and sigh for the protection of a settled government. Were this given to them, their condition would soon improve in every way. Their chiefs are 'barbarians of the rudest stamp, without any of the barbarous virtues.' They reside in small mud forts, exact as much as they can from all who come within their reach, and form occasional combinations for the defence or attack of each other. The Eimaucs differ chiefly from the Huzarahs in being of a more nomade habit, the chiefs consult their dignity and safety, by dwelling in mud forts, but the people reside nearly the whole year in the dry stick and felt tents which are used by the Toorkmans. The chiefs, like

the Huzarah meers, have their feuds, which continually break them up into parties against each other. The people are bolder than the long oppressed Huzarahs, and will get together to attack travellers whom they would rather only attempt to rob privately.

The Soldiers of both tribes are cavalry, mounted chiefly on small active horses of native breed, though some ride horses imported from Toorkistan. Their arms are swords, and matchlocks, the last weapon furnished with a prong for a rest. There are clans of military repute among both people. Their strength lies in the poorness and natural difficulty of their country, but the last defence is I imagine greatly overrated. Parts of the interior are described as much more steep than that which we traversed, but this portion, which is the most important, as being on the high road to Herat, is by no means so inaccessible as it has been represented.

Neither among Huzarahs or Eimauchs is money current, and sheep form the prime standard of barter with the traders who come among them from Afghanistan, and Tartary. These Merchants establish a friendly understanding with chiefs of different districts, to whose forts they repair and open shop, giving their hosts $2\frac{1}{2}$ yards of Kerbus, or coarse narrow cotton cloth, for the value of each sheep received in barter ; and being furnished till their bargains are concluded, with straw for their beasts, and generally bread for themselves and their people. Traders from Herat, Candahar and Cabul bring their checked turbans, coarse cotton cloths and chintzes, tobacco, felt, and carpet dyes, iron spades, and plough ends, molasses and a few raisins. Toorkish Merchants bring similar articles from their own country, with a little rice, cotton, and salt, occasionally horses, which they prefer to exchange for slaves.

The articles which the Huzarahs and Eimauchs bring to market, are men and women, small black oxen, cows, and sheep, clarified butter, some woven wollens for clothing, grain sacks and carpet bags, felts for horse clothing, and patterned carpets, all made from the produce of their flocks, for they export no raw wool. They also furnish lead and sulphur, and the Eimauchs especially speak of copper and silver mines as existing in their mountains, but they do not work them.

Agha Hoossein, a Native of Herat, who had long traded among the the Huzarah, and Eimauch clans, occupying our route between Bamcean and the border of Meimunna, negotiated our passage with a safe guard the whole way for 1,200 Rupees, and we marched with him from Bameean on the 23rd September 1840, escorted by 80 Huzarahs under a son of Meer Sadik Beg, a leading chief in the district of Deb Nangre. Our road

took us in 3 marches over spurs from the main ridge of Hindoo Koosh (Koh-I-Baba) to the fertile and well inhabited valley of Yaikobung, which has the breadth of from $\frac{1}{4}$ to $\frac{1}{2}$ a mile, in a length of 15 miles, and is well watered by a clean trout stream from the famed 'Bendmir,' which flows on to Bulk. h.

We slept the first night in the cold damp valley of Shebbertoo, which, according to the boiling point of a Thermometer, is about 10,500 feet above the level of the sea. The mercury at sunset stood at 37° ; in the course of the next $\frac{3}{4}$ of an hour it fell to freezing point, in fact before sun rise next morning it was down at 10° . The residents say that they have 5 months winter, which commences late, but is every rigorous, and the deep snow which falls, is not all off the ground two months after the vernal equinox. The rest of the march brought us to the valley of Fuor Behar, about 2,100 feet lower than Shebbertoo, where the barley crop was not all ripe, and the Thermometer showed about 11 degrees difference of temperature. The third took us 8 miles down the valley of Yaikobung, 1,100 feet still lower, where the people had just got in their crops of fine wheat.

The present chief of Yaikobung is Meer Mohib, a vulgar and coarse man. He put Shalt Shoojah's letter to his head, and came to pay his respects to us as the bearers of it, when we gave him a suitable present. Having taken leave, he sent to beg for my furred cloak, and on my giving his messenger a note which would procure him one from Bameean, he sent to say that he must have my girdle shawl and 1,000 rupees, and he would permit us to depart. We were too many to be thus bullied here, therefore replying that the Meer seemed to misunderstand our condition, we marched away at once without his daring to interrupt us.

West of Yaikobung, the main ridge of Hindoo Koosh sweeps round to the northward, after which turning westward again, it forms the northern boundary of the hills which slope down to the right side of the Heriroad valley. Our fourth march took us by a very steep defile across this ridge, from the base of which we descended through a deep valley, about 5 miles westward, to the fountain head of the Heriroad a clear pool of gently bubbling springs, where the boiling point shewed an elevation of 9,500 feet, 1,100 higher than the bed of the stream flowing northward from Yaikobung.

We followed the course of the Herat river, in its clear, quick wanderings through different breaks of the limestone valley, which forms its bed, for four marches, the first taking us to the head quarters of Meer Sadik Beg in Dab Yungee. This chief, who is a vulgar but well

disposed man, treated us very hospitably, neither he or his sons read the Shah's letter, but having heard it perused, he stuck it in the top of his turban, and declared that he was His Majesty's servant to do any thing that lay within his limited ability. We remarked that the chief service His Majesty required from the Huzarah Meer was to keep their people loyally quiet, to which Sadik Beg replied, that he should be truly glad to be quiet, both on the king's and his own account, if some of his Huzarah neighbours and Eimaunks, would only let him.

We expected to have found awaiting us near this post the Eimauk escort which our guide had engaged from Mahomed Areem Beg, the Atalik of the Feroozkohee clan; but we found that in the interim the Atalik had been persuaded to march with an Eimauk Army against Hussun Sirdar, a powerful chief of the Dah Koondie Huzarahs, and that we must in prudence await instructions from him, or an end of the war. This Sadik Beg said would not last long, as the Eimauks had gone in such numbers, that they would not keep the field for the want of provisions, and the danger he most feared for us, was, our meeting some of these returning troops ere we got the Ataliks safeguard. Our guide therefore went off to the head quarters of the latter chief and finding there one of his sons, persuaded him to come to our camp. The young Eimauk chief arrived at night, and nothing would induce him to go beyond my Meerzas tent.

The Huzarahs, he said, were his sworn enemies, and were capable of any atrocity, why should he put himself within their reach in the dark. Next morning he went up to the fact on Sadik Beg sending him a solemn oath of friendship, and they presently came in a cordial manner together to consult with us about the onward march. The son of the Atalik said that he would give an answer in his father's name to any Eimauks who might come across our road, and as he appeared to be an unvapouring person, he resolved to proceed with him at once. Sadik Beg accompanied us one march with a large body of horse, as he had heard that a party of Huzarahs, from another near Chiefship, had marched to intercept us, turning back at the end of his district, between which and the Eimauk border a few miles of the valley are left waste. Our reported enemy, the Chief of Sal, met us here with 100 horse, and said that he had ridden to our assistance, on the intelligence that Hussan Khan of the Tymunnee Eimauks had occupied the road ahead, with the intention of plundering us. We understood this to be a demand for a present, so adding to our thanks a Cashmere

shawl, we marched on, receiving from our way side acquaintance a parting caution to put no trust in any Eimauk.

We safely concluded this day's march of 12 miles, which brought us among a quite different people. In point of personal appearance the advantage was certainly on the side of the Eimaux, who though living closely after the nomade fashion of Toorkinans and Oosbeks, have the features rather of Darrians than Tartars. The Feroorcokehs indeed claim descent from a Colony, which was exported from Feroorkoh, in the Persian province of Mazenderan. We encamped upon the right bank of the Henrood, among people of this clan, half a mile off on the other side of the river was the fort of Dowlut Yar, surrounded by villages of Tymunnee tents, to which we learned that Hussan Khan had returned the day before, apparently without having entertained any idea of barring our road.

The war, we learned, was ended. It had its origin in an act of violence committed 9 years before upon the very Agha Hossein attending us as guide, then travelling with a stock of goods from Herat to Cabool, who was plundered by the former chief of Dowlut Yar, for preferring the quarters of our host the Ferozkohee Atalik. The latter Chief not being able with his domestic means to force a restitution of the goods taken from his protégé, allowed Agha Hossein to call upon his Huzarah friends for succour, and the leading chief of Deh Koondee, Hussan Sirdar, glad to indulge a national dislike while defending a commercial privilege which it concerned every Chief, whether Eimauk or Huzarah, to uphold, came with such a large force that he took the lead in the operations against Dowlut Yar, having captured and utterly rased the fort; after killing its Chief and his eldest son, he gave the old man's, wife to his own brother, and took his daughter to himself, returning home only, when he had captured another fort nearer the border, and placed a party of his own men therein. Agha Hossein got all his goods that could be recovered, and so retired. But now the Atalik regretted the loss of Eimauk reputation to which he had been accessory, so he countenanced a stratagem by which the border fort was recaptured, and having helped to rebuild that of Dowlut Yar, brought back the old chief's second son, the present Hussan Khan, to inherit it. The latter had just before our coming persuaded most of the Eimauk Chiefs, including his father's first adversary the Atalik, to make an attack upon Hussan Sirdar of Deh Koondee, for the cleansing of their national reputation. The quarrel was accommodated in a way to make the Eimaux appear superior, by the

Deh Koondée Sirdar's restoring the arms which he had taken from Hussan Khan's father and engaging to give 2 or 3 daughters to the heir and his relatives, to close the blood account.

Agha Hossein our guide, who thought it well to remove all ill blood from Hussan Khan's heart for the excusable share that he had in the past disasters, went to Dowlut Yar, with a koran, on which he declared before witnesses that he absolved the chief from all obligations to repair his former losses, and called upon him to say in the same solemn way that by-gones should be by-gones. The Chief consented, and accepted a present which we sent with a letter to his address from Shah Shoojah, but his manner on both occasions was so sullen that our guide resolved to give him the least possible opportunity of doing us an injury.

The Atalik arrived in our camp next morning, and speaking with confidence about our road forward, sent us on with a small escort under his brother and son, while he went to get back from Hussan Khan a horse stolen from our pickets which had been traced to Dowlut Yar. When we had got 2 miles down the valley we were met by 60 horsemen, who called out to us to stop and pay zucat. The Atalik's brother riding a head, and explaining that we were envoys on the King's affairs, and not traders, our waylayer replied that we had paid our way to others, and why not to him. 'They are guests of the Atalik' exclaimed his brother, 'and by God and the Prophet they shall not give a needle or a Chillum of tobacco.' 'Then by God and the Prophet we will take it', rejoined the robber; whereupon he ranged some of his men in line to face us and caused others to dismount upon a rock behind and to set their guns in rest. We lost no time in getting ready for defence, but the Atalik's brother riding out between our fronts, called a parley, and drew a line which neither party was to pass till peace or war had been decided on. Three quarters of an hour was consumed in debate, which was thrice broken by demonstration of attack and by the end of this time 30 or 40 men of the same tribe had collected on foot from a rear encampment, with the evident intention of making a rush at our baggage in the event of our becoming engaged in front. We had despatched several messengers to bring up our host, and just at the affair had assumed its worst look, a cry was raised that he was coming. Looking back, we could see horsemen pouring out like bees, from the tents surrounding Dowlut Yar, and all hastening in our direction, but while our Eimauk escort exclaimed that the Atalik was coming in force to the rescue, our opponents cried out in scorn that Hussan Khan was coming to help them to plunder us, and each party,

raised a shout for the supposed reinforcement. After about 10 minutes of the most intense anxiety during which we and our opponents, as if by mutual agreement, waited to see whose conjecture was right, we were relieved by the arrival of the Atalik, who galloping up ahead to us at the utmost speed, exclaimed that he had brought Hussan Khan to our defence. The announced ally was not long in following with 300 men, and our enemies were made to understand that they must abandon all idea of attacking us. Hussan Khan declaring that we were envoy's recommended to him by the Shah whose slave he was, and that he would allow no one to molest us. It seemed pretty clear that the Atalik had wrought this loyal zeal in Hussan Khan's mind, and probably, from the delay which had occurred, that he had not found the task easy; but 'twas not a time to scrutinize very particularly the motives which had brought us a defender, so we gave Hussan Khan the politest credit for his professions, and at evening sent him a handsome shawl from the Atalik's fort, with a promise that we would not fail to represent his conduct to the Shah.

We arrived that evening without further adventure, at Badgah in Cheghehezan, a fort in the Herirood valley which is the family seat of the Feroozkohee Atalik, and we shewed our appreciation of the service which this chief had rendered us by giving a very handsome present to him, besides gifts according to their degrees to his brother and other relations.

We were detained 4 days at Badgah, first in consequence of the Atalik's indisposition, and then in order to get rid of a neighbouring chief connected with him, Kurar Beg of Surusghar, who threatened to attack us in our very camp near the Atalik's fort unless we paid him black mail, his right to demand this, he said, lying simply in his power to enforce its payment. After causing us several alarms, Kurar Beg listened to the remonstrances of the Atalik, the aid of our host being necessary to protect him from another more powerful chief whose son he had murdered in his own house, and he came to pay us a visit, attended by 200 followers.

We now left the Herirood valley, ascending 3 miles through the hills on its northern side to a ridge running parallel with it, and proceeding 8 miles further to the northward over an undulating down to the summit of the main ridge of Hindoo Koosh, which we crossed by the easy pass of Shategh i Ghilmee. It is not higher to the eye than the ridge first noted, and there are higher looking masses to the northward, but our guides said that it rose again both east and westward, and their defini-

tion need not be disputed, for the springs on one side of this trunk flow to the Herirood, and on the other towards Tartary. We descended from it to a deep and rapid brook called the Tungan; which led us 4 miles down with the cultivated valley of Ghilmee to the mouth of a deep and close pass called the Derah i Khurgoosh, or the Hare's defile, where the boiling point shewed an elevation of 5,200 feet, about 400 feet lower than our last station in the valley of the Herirood.

Friday 9th October. Quitting camp at 9, 15, we followed the brook Tungan into the Hare's defile, commanding the road at the second of 3 angles. In the first 500 yards, was a brick wall with holes built up like a screen upon a not easily attainable portion of the rock, which we were told was anciently erected to help the collection of transit duty. We next went $13\frac{1}{4}$ miles between bare perpendicular mountains of limestone, the defile running in acute zigzags which for the most part were not more than 50 or 60 yards long, and having but breadth enough for a path, and for the brook which we were continually obliged to cross. Burnes, I see, states that after crossing the Dundan Shikan, he travelled on northward to Khoollum between frequently precipitous rocks which rose on either side to the height of 300 feet and obscured all stars at night, except those of the zenith. I am afraid of exaggerating the height of the cliffs between which our road here lay by guessing at their height in feet, so will only say that their precipitous elevation made our horsemen look like pigmies as they filed along their bases in the bed. After this very narrow portion, the defile widened to the breadth of 50 yards, but it presently contracted again to that of thirty, which may be stated as the average width of its onward windings for nearly 5 miles, where the Tungan discharged itself into the river Moorghaub, which came from the east, in a bed of good width, through a similar deep pass. After creeping along the bottom of the defile for the first $2\frac{1}{2}$ hours of our march, we ascended some way up the side of the left mountain, and followed the bends for the next hour and a quarter by a narrow path worn upon its slightly sloping edge, a tangled thicket now occupying all the spare bed of the stream, to which we descended again $\frac{1}{4}$ mile before its junction with the Moorghaub. The Tungan is a deep brook before its entrance into the Hare's defile. In spring, what with the increase of its waters from melted snow, and and their compression between the sharp turnings of the narrow defile, there is no passage from side to side, except such as is afforded for a footman by means of a spear laid across its rocky banks. The distances noted afford a very imperfect description of the quantity of ground that must

be traversed by a traveller through this defile. An idea of its windings may be formed from the facts, that our baggage ponies were nearly 4 hours creeping along a distance for which my observations afford a direct line of $6\frac{1}{4}$ miles, and that the portion of our road which lay in the bed, crossed the stream 34 times.

What is called the Derah i Khurgoosh ends at the junction of the Tungan with the Moorghaub, but the narrowness and difficulty of the pass continues for a mile further down the left bank of the latter stream, which we forded where the water was up to our ponies' shoulders, running at the rate of, I should imagine, $3\frac{1}{2}$ miles per hour. A steep road, which laden ponies take, ascended a little above the entrance of Derah i Khurgoosh, which comes down again just below the junction of the two streams.

Afterward the pass opens out into a warm little valley of 250 yards width, called Taitak, or under the mountain, at the end of which we halted near some Eimauk tents. Hence we turned off northerly from the Moorghaub, and ascending by a moderate steep pass to the top of the hills enclosing its right side, proceeded on a gentle rise over an undulating surface that gained to a small grassy vale lying at the foot of a higher pass. Here we had an unpleasant scene with the greedy relatives of the Atalik accompanying us, who announcing their intention to take leave, demanded presents extravagantly above any claims that they could prefer for reward, and by their united clamour hindered all endeavours to moderate their claims made by our host, to whom alone were we strictly bound to give any thing. After I had gone out of the way to satisfy these beggars, they went off as if they were the party robbed, and I have no doubt that they incited the attack which was made upon us the next day.

October 11th. Quitting camp at 10, we ascended $\frac{1}{4}$ mile up a rocky pass to the spring head of Misree, which waters a small grassy level in the enclosure of the pass, where we found an Eimauk encampment. The pass upward from this little platform was steepish, though on an equal ascent, and the path was tiring, lying over small loose fragments of slaty limestone which had fallen from the shelving bases of the decomposed cliffs on each side. The defile above the spring gradually narrowed in an ascent of about $13\frac{1}{4}$ miles; which our laden ponies were 40 minutes accomplishing, to a point at which the steep rocks, enclosing it almost met, leaving a short passage through which 3 horsemen could ride abreast. Our foremost riders had nearly reached this point when a number of armed men rising with shouts from their ambuscade above it and on either side

of us, began with one accord to pelt stones at us and to fire their guns, those who were on our flanks also loosennig pieces of rock which came bounding down the shingle bank with force enough to bear away any thing occupying the path. Fortunately the cafila was far enough behind to avoid the first of the attack, and we retreated to an open part of the pass, where, making ourselves masters of the shelving bank on each side, we entered into negotiation with our assailants ahead. After much time had been lost in parley, our aggressors agreed to take a few pieces of chintz and 40 rupees (as we had no more goods) and invited us to advance, but we had scarcely reached the old point, when our envoy sent with the cloths and cash agreed to, came running down to us stripped and beaten; and the attack upon us was renewed. Our skirmishers having kept the shelving flanks, we had not to retreat far, and having briefly consulted on turning again, we decided that there was nothing for it but to force our way, so advancing with our best musquet men on foot, while those left with the cafila followed in close order, firing over our heads at the cliffs above, we in less than 10 minutes made ourselves masters of the narrow passage, from which our enemies retreated over the hills. Some of our men and horses were severely bruised by the stones which were raised upon us during this push, but 20 boxes were broken, and the only gun shot wound that could be found was in the cloak of one of my Hindoostanee servants. I am happy to believe that none of our cowardly enemies were killed or seriously wounded, for we found no dead men on the rocks taken, and they retreated too fast to carry off any who were much disabled.

We were 40 minutes more ascending to the summit of the pass, but the defile was comparatively open above the narrow passage, the rocks on each side being low and rounded. We here took leave of the Atalik who had come after us on hearing that we were attacked. I believe him to be about the best man in his country.

We rested at evening in the small valley of Hushtumee, where we found officers collecting the tax of one sheep in forty for the Walee of Meimunna. Our next two marches were over the mountains of the Hindoo Koosh, from which we made a steep descent, leaving the mouth of the defile by which they are entered nearly 6 miles S. E. of Meimunna, to which we proceeded through a fertile valley bounded by low and round earthy hills, the stream which we had followed from the foot of the mountains irrigating countless vineyards and gardens, the walls and trees of which concealed the town till we were inside it.

Somes miles before reaching Meimunna we observed a sign that we were approaching a slave mart, for an old man who rode out from a small encampment to offer his horse to us for sale, said that he would take a young male slave and a pony for it. We told him that we were not men sellers, and asked him if he was not ashamed to deal in the Khulk'Oollah. (God's Creatures.) He replied that he could only do as every body round him did, but that he did not require the actual slave, only the value of one, shewing that men are here a standard of barter as sheep are among the Huzarahs. Herattees, this old broker said, were comparatively speaking a drug in the market, owing to the quantity that the vuzeer of that city had exported. Huzarahs were so so, and the only captives that would now fetch a good price, were the young men and girls of Roum and (*illeg. in MS.*) or other real Kuzzilbashees.

Mirrab Khan was out upon his annual battu when we arrived, but his brother gave us excellent lodging, where our people and horses were daily provided with every thing that could be desired. The Walee returned on the 4th day of our detention, and courteously visited us the next morning, when after presenting to him Shah Shoojah's letter and a dress of honor, I quite won his heart by giving him a double barrelled percussion gun, he being passionately addicted to field sports. We went the next day to return his visit, and the following is my note of the interview.

Mirrab Khan bade us frankly welcome, and ordered in breakfast of bread, fruit and salted cream tea, of which we partook together, our servants carrying off parcels of fine green tea imported from Yarkund, and large loaves of Russian refined sugar, which were set before us upon large platters of dried fruits, as the host's offering.

I could not obtain certain accounts of Mirrab Khan's revenue, for he keeps no regular duster. My Meerza witnessed this irregularity for years, and used to remonstrate with Mirrab Khan about it, when the chief would reply that it was not the Oosbeg way to take particular account of what came and went, a saying confirmed by report of the laxity, which prevails in the financial department of Khiva, and even in that of the more formally organized government of Bokhara. Mirrab Khan expected to be furnished with means for all his expenses by his Dewan Beggee, who was able to do this without murmuring, after getting in half of the Walee's due from the inferior officers, through whose hands it came. I have roughly calculated the Walee's annual expenses at 10,000 tillas, or 80,000 Caubul rupees, which supposing my preceding conjecture right, would give him a fair revenue of a lakh, and a half of

rupees, but this might be increased very greatly, if any thing like system were introduced into his government. It is said at Meimunna that Ahmud Shah imposed a tax of one toman upon each of 360 ploughs, belonging to as many villages in this district, then registered under Aumilders, for the support of Hajee Khan's Mehman Khanah. Those ploughs were understood to be used for the cultivation of lands watered by natural streams, (there are no kuhreezes in this country), and something more than 3 times their produce was said to be raised from Daimee land or soil watered by the heavens. If we allow 15 khurwars for the crop of one plough, we have 5,400 khurwars for the stream lands; 3 times this for the rain crops would be 17,200 khurwars and the total 22,600 Ditto. The country is certainly now better populated and cultivated then it was at the beginning of the Dooranee monarchy, so a guess may be made at the least amount of its agricultural produce, but I cannot pretend to determine this. Much again is exported from this province to the Eimauks and Huzarahs, and, latterly, to Herat. In cheap times a khurwar, or 100 muns, of wheat is sold for a ducat; we only get a third of this quantity for the same money.

We made 5 marches to the southward of west, viâ Alma, Keisu and Charshumbel from Meimunna to the rise of the Moorghaub encamping on its bank at the fort of Karoul Khaneh's a few miles below the fort of Bala Moorghaub which we did not see. In view upon our left during these 5 marches was the northermost ridge of the Hindoo Koosh mountains from which we descended behind Meimunna. Our road lay upon easy rises and falls through hills of a light clayey soil, enclosing many well watered vallies and glens, in which is cultivated wheat, barley, millet, sesame, flax and cotton; vineyards and gardens flourish about the villages at the chief of which brisk little fairs are held twice a week for the convenience of the country round. It is a fruitful country which only requires more inhabitants, and I learn that the districts on towards Herat, as well as those under the mountains eastward of Meimunna, are of similar character.

We found our road to Karoul Khazeh safe, but vigilantly watched by patrolling parties detached by the Walee of Meimunna, the Jemsheiddee tribe, and the Soonnee Huzarahs of Killah. Several cofilas passed us, going to Bokhara with merchandize, or to Meimunna for grain, and we met single Toorkmauns riding horses to Meimunna which they designed to exchange there for slaves. On the 4th March, when we had passed the ruined fort of Kaornach, anciently the Jemsheeddee border mark, we were met by a young chief of the latter tribe, who thinking that our influence might avail him at Herat, complained that he had been driven

from his home by Mahommud Zeman Khan, his more powerful rival of the same clan, who on sending a party of those who had followed him, to cultivate land near Nerochok had fairly seized their crops, driven off their cattle and sold 25 persons to the Toorkmauns. This confirmed the statement which we had heard at Meimunna, and which we soon ceased to doubt that the Soonnee religion is no longer a safeguard against captivity. Every defenceless person who can be used for labor is carried off to the insatiable markets of Tartary. We were followed by a small cafile of slaves from Meimunna consisting of Sheah Huzarabs and Soonnee Eimauks, of all ages from 5 to 30.

We forded the Moorghaub at Karoul Khaneh, and our onward march lay along or near its left bank for 8 marches to Merve. The first took us past the rather imposing, but desolate mud fort and citadel of Meroc-hak. Many mud pillars, which were formerly used by watchers of crops, yet stand among the weedy bushes that have overrun the chief portion of this now deserted valley, and the land retains many traces of the industry with which it used to be irrigated. In parts high weeds have sprung up thickly where flood water from the Moorghaub has been allowed to settle, and its stagnation in those marshes is doubtless the chief cause of the malaria which makes this district uninhabitable during the heat of summer. The next wide break of the Moorghaub valley below a broad belt of low dry hills which bound Merochak, forms the head of the division called Punjdeh extending 20 miles down to a point where the stream of Kooshk joins the Moorghaub, which although it contains weedy vegetation in standing water on one side, is well inhabited by Tookmauns, who are evidently in a flourishing condition. They breed many horses which they profitably export; and they find pasture for large flocks of sheep, and herds of camels in their range of the valley parts of which they cultivate with jewaree wheat and barley.

These Toorkmauns are a colony of the Ersaree tribe from the banks of the Oxus, divided into 4 clans, called Oolle Zuppeh, Kureh Shughsee, and Chunghee which they estimate in round numbers at 500 tents each.

At Punjdeh we laid in 5 days' dry provisions for ourselves and horses, there being no encampments upon our road or along the Moorghaub to Yellatoon. The right of the valley, which the river favors, is for nearly all through bounded by a well defined line of low hills. The left, near which our road lay, was sided by hillocks and undulations than positive hills. On the 2d March we first observed sand lying upon the hill as if drifted by northerly winds from the desert, and a third of our onward way lay, over loose beds of sand that covered portions of the hard white clay soil,

which forms the proper surface of the country as far as Merve. The bank of the Moorghaub upon which we halted each night, was thickly fringed with Tamarisk bushes. The water of the river was very muddy, flowing ly with eddies at the rate of one and a quarter mile per hour, and having many dangerous quicksands. We very nearly lost a man who rode his horses a little way in to drink. Though we met no tents we saw vast flocks of sheep which are sent thus far from Merve to pasture with a few shepherds and dogs. We carried chopped straw upon our horses, being accustomed to it, but there was no want of grass on the way for the native horses of our fellow travellers who had not gone to this expense. The road is by no means difficult abounding as it does in grass, wood and water, and it was evidently well travelled formerly.

Our third march brought us to a very fine caravansary of burned bricks, containing accommodation for many men and beasts, which is attributed to Abdoolah Khan of Bokhara a philanthropist who has the credit of all good works in these countries, as Alle Merdun Khan does in Affghanistan. Close to it is a mausoleum sacred to the memory of some Imaum forgotten.

Despatch from Lieut. H. Bigge, Assistant Agent, detached to the Naga Hills, to Capt. Jenkins, Agent Governor General, N.E. Frontier, communicated from the Political Secretariat of India to the Secretary to the Asiatic Society.

I have the honor to report my arrival at this Post, (Demalpore) where I am happy to state large supplies of grain, &c. &c., are now daily arriving for the use of the troops about to accompany me to the Naga hills.

Having been prevented, from the total want of population on the road between Rangalao Ghur and Kasirangah, of Mehal Morung, from passing up that line of country, I crossed to the north bank of the Burrampooter at Bishnath, and passing through the villages of Baghmaree, Rangasalli, Goopore, and Kolah Barri in the Luckimpore district, crossed the Maguli Island to Dehingeahgong, and so through Deergong to Cacharri Hath, where I fell in with the detachment of the Assam Lt. Inf. which Captain Hannay had sent off, to await my orders at Nogorah.

From Cacharri Hath I passed to the Dhunseri river at Golah ghaut, where I was glad to find that the greatest portion of the supplies of rice, &c. dispatched by me from Nogong, had all arrived safely, and

that a large portion had been sent forward; the remainder was speedily transferred to smaller boats, and is now close at hand, having been brought by water to a small river called Daopani, one march on this side Hir Pathor, (Bor Phalong of Captain Pemberton's maps) and from whence a path through the forests had been previously cleared to the nearest point to this.

From a demi-official letter, received at Golah ghaut from Captain Hannay, I was led to believe that large supplies had been collected for the use of his detachment at Nagorah, but in this there must have been some mistake, as the Jemadar in command informs me, that, but very little rice has been collected, and not much more may be expected at present.

Never having previously relied on any other arrangements than those I made when at Nogong, but little, if any delay will result from this circumstance; and the detachment was ordered to leave Nagorah on the 1st instant at latest, and will, probably, should the heavy rains we have had not detain them, arrive here on the 5th or 6th instant.

I remained 3 or 4 days at Golah ghaut, superintending my arrangements, and was present at a sort of fair, held there, on the arrival of a fleet of boats, laden with cotton from the Lotah Nagah Hills on the Dogong river, which falls into the Dhunsini a short way above; about 70 of the Nagas came down, with two of their sykeats, many of them understanding the Assamese language, and were engaged the whole day in bartering their cotton, for salt, dried fish, dogs, fowls, and ducks, with a few brass rings, of which they seem very fond, suspending them one below the other from holes bored in the ear.

The general average of prices was about

1 Seer of Salt	4 to 5 of Cotton.
1 Dog	3 (they eat this animal.)
1 Fowl or Duck	1½ to 2.

On visiting their camp a little above the ghaut, I found several of them lying on the ground, intoxicated from the effects of a most disgusting sort of spirituous liquor they make from rice, and which they drink hot; they are a very sullen race, and it was with some difficulty I could get any replies to the few questions I asked them.

Regarding the madder, with which the hair on their spears was dyed, I tried a long time to gain some correct information, but in vain, the Sykeah told me, they had none in their own hills, but what they used was brought to them by the *Abor Nagas*, a tribe I have not yet heard of, but believe it will be found to mean the Amgamees, of whom they seemed to stand much in dread, and from whom they said they received

a large portion of the cotton, they brought down for sale, acting, it would appear from this, more as merchants than the actual growers.

The country of these Abors, they described as being due south from their hills, but they said distant 2 months' journey, an obvious error, as such a distance would take them far to the south of Munnipore. As the name of this tribe was also made use of by the Rengmah Nagas (inhabiting the hill between those of the makers of Nagong and the Dhunsiri) I may hereafter be able perhaps to make myself better acquainted with their position, though this tribe also seem to fear them fully as much as the Lotahs.

In appearance, the Lotah Nagas are of a short, though stont build, and some of them by no means ill-looking; they wear no more clothing than their brethren of other parts, and are alike filthy in their persons and habits, and have a pompous mode of addressing one, which might in some cases be interpreted as insolent. I shewed them some clasp knives, I took down with me for the purpose, at which they laughed, and sneeringly remarked, 'of what use were they? Naga requires only a *dhan*, and his spears; such things are of no use or value to us:' before quitting this race, I may as well observe that they carry away about 12 or 1,300 maunds of salt annually, in exchange for cotton, so that their trade may be deemed equal to near 10,000 mds. of cotton in all

There are several merchants, chiefly Kyahs, from Marwar, established at Golah ghaut, besides Musselmans from Goalpara, but so little trade is there for any thing besides cotton, that I was unable to procure a brass pot of any sort; woollens and every other descriptions of cloth are alike unsought for, their stock in trade being composed entirely of salt.

A large quantity of iron being found and manufactured in the neighborhood of Golah ghaut, the Nagas obtain their *dhans* chiefly from hence, the price of which appeared to me very high, being 4 as. each, and the iron fetching as much as 8 Rs. per maund, unwrought; the quantity annually manufactured, I was unable to ascertain.

Leaving Golah ghaut in company with Mr. Herring who had joined me from Bishnath, by appointment, we passed through a long belt of dense forest to the Nambur Nuddie, about 10 miles, for the purpose of visiting together the salt springs, and lime stone rocks, which are found on its banks. The camp was formed for the night on a small sand bank, round which the river ran, and in the centre of which was the salt spring, or, called by the natives, on account of the heat, the *Jucung poong* or hot springs.

The water from this spring is beautifully clear, and of a temperature of $110\frac{1}{2}^{\circ}$ in the well, to $11\frac{1}{2}^{\circ}$ in the sand, as determined by most accurate observation, from a first rate thermometer obtained from London, for such purposes:—this was at 3h. 33m. P. M., the temperature of the air being $59\frac{1}{3}^{\circ}$ at the time, repeating the observations the next morning at 7. A. M. when the atmosphere was at 43° . I found no difference in the temperature of the water.

The water when drank appeared to me to contain but very little salt, and flavored rather of sulphur than any thing else; the spring is a very abundant one, and would nearly suffice to turn a water wheel, but is so little elevated above the level rain, that a rise of only two feet would be sufficient to swamp it, while from the water marks on the trees, it was obvious that the whole was submerged in the rains from 7 to 8 feet.

The neighbourhood of the spring was every where trodden down by elephants, buffaloes, deer, &c. which animals resort there in great numbers to drink the waters, through my own elephant, ponies, &c. refused to taste it; in the centre of the spring there is a depth of about 1 foot of water, below which the feet or hand might easily be passed through a thin bed of sand, composed entirely of quartz to a bed of large pebbles of a similar nature, and it was resting the thermometer on the latter bed that the greatest heat $113\frac{1}{2}^{\circ}$ was obtained.

This spring is situated about $1\frac{1}{2}$ or $3\frac{3}{4}$ of a mile from the Dhunsiri, but in spite of this, I fear the returns would not be worth any persons while establishing a manufactory of salt, as he must leave the place in May, and could not expect to return till November, which would be the earliest date at which these forests could become habitable after the rains.

I boiled a large quantity of water, about 2 gallons, till it was reduced to $\frac{3}{4}$ of a quart, which was afterwards evaporated at Bor Pathor, but not more than a tea-spoon full of salt was obtained, a very poor return, I should suppose, though the salt was to the taste extremely good.

The morning after I reached this spring, as the distance to Bor Pathor, was but short, Mr. Herring and myself proceeded through the forest, along the banks of the Nambur Nuddie, to visit the other springs, and also the limestone beds, distant by the watch $1\frac{1}{2}$ hours, in a S. W. direction. A short way below the springs, in a small stream, running from them, on which the water was pleasantly warm. Mr. Herring's discovered some trees, which struck us both as being tea, though I am uncertain as to the fact, but have sent specimens of the leaves, flowers, and fruits, through Capt. Vetch, to be examined by Dr. Arnott and Mr.

Watkins, as in the event of their proving genuine, would greatly enhance the value of the springs and quarries.

The salt springs which are 3 in number are situated 250 yards to the north of the Nambur Nuddie, in a small circular space, surrounded by forest, but are neither so hot or apparently so strong of brine as that we first saw. The temperature being as follows.

In the shade,	64° air.
Large spring,	95° water.
Smaller one,	98°

The difference between the larger and smaller springs being doubtless caused by a small stream of water flowing into it.

In the time of the Assam Rajahs, it appears, these salt springs were regularly worked, and the water dammed up for the purpose, as the remains of the parts which formed the dams are visible in the stream, which falls into the well, as also in that which carries off the water.

The limestone, of which I send specimens, is found in the bed of the Nambur Nuddie, close to the salt spring, where it appears at the clay; as also in the small stream above mentioned, which runs through the larger spring about 200 yards further up, and beyond which, about $1\frac{1}{2}$ a mile, is found pipe-clay, some detached pieces of which I saw, but had not time, on a second visit to these wells, to reach the beds.

It is a curious fact perhaps, that a large quantity of small fish, inhabit the larger of these wells, and it was a subject of much regret, that I was unable to procure any, as specimens, as it could not but have been satisfactory to ascertain, what description of fish these were, which delighted in such a temperature and in such water.

The only drawback to the effectually working these spring, and limebeds, for a certain number of months during the year, appears to be the want of conveyance to the Dhunsiri river, and I think it might be worth the experiment of making an outlay, on the part of Government, of 2 or 300 rupees to effect the same, either by cutting a road through the forest, or by erecting *Batahs* (or dams) in the river, so as to allow of its becoming navigable for small boats, which might easily be dragged over the slight falls when empty, and as easily taken down when laden, a practice much in use on the Dying river of Cachar, as you have had opportunity of observing.

Should such a proposition meet with the approbation of Government, I believe Mr. Herring would be happy to devote a considerable degree of attention and minor expense, so as to render these wells far more valuable than they otherwise can become, by sinking shafts at a little

distance from the present springs, with a view of procuring a purer supply of salt water, for the purposes of manufacture, and would also work the lime stone in conjunction with the salt, but without this aid, situated as these productions are, in the midst of an uninhabited forest, and not within 8 miles of any population, I fear there is not inducement, sufficient to render it worth his while attempting it, or incurring the expense which must necessarily attend such an undertaking.

I may here observe that these forests abound with the finest *Nehor Trees* I have ever seen, a wood, which, though from its weight and extreme hardness, is perhaps not adapted for all purposes, is most admirably so for beams, posts, &c. where great strength and durability is required, and might be very advantageously used in all Government buildings where obtainable.

I left Bar Pathor after seeing all my supplies well off in boats on the 23th ultimo, reaching the mouth of the Duopani Nuddi on that day, the Hurrioghan Mookh on the 29th, the Debopani Mookh on the 30th, and arriving here on the afternoon of the 31st, the road running along the line of the Dhunsiri, though straightened in many of the turnings for 38 miles through the densest forests, the last 10 miles being up the bed of the Dhunsiri itself.

Through all the desolate jungles that I have hitherto travelled, and they are not a few, I never met with one so completely abandoned by life as this; no animal of any kind was seen, nor was a bird heard from morning till night, the death-like silence being only broken by the heavy fall of the *Otengah* fruit, these trees composing the entire forest or nearly so. The marks of the river left on the trees was every where visible from 1 to 9 feet in height, forbidding all idea of making this line, that of communication with this post, save during the cold season, and that too at a late period from the number of impassable swamps, which everywhere intervene, and render all attempts at rendering the present path any shorter, or much more practicable than it is, alike unavailing.

Fodder for cattle, especially elephants, is remarkably scarce, my men finding the greatest difficulty in obtaining the smallest supply, and that too of a very poor description.

The vast number of trees, which are sunk in the river and on the sands, render the navigation for boats almost impossible, beyond the Daopani, unless perhaps during the rains, and even then, it is not without the greatest care, that boats can proceed, either up, or still more so, down the river; a very large one last year was swamped close to Bor Pathor, while passing down empty, being entangled in a large tree, one of

the men being drowned, and the rest with difficulty saved, the boat being lost.

Such being the state of the country on the North side, it will be necessary to open a better communication, than at present exists towards Mohong Dezooah, and for that purpose, I intend engaging a large number of coolies, if possible, from Tuli Ram Senaputti's country, to construct a regular road from Mohong Dezooah to this part, unless a better site can be shortly discovered, clearing away the jungle, and if he will agree to it, locating 10 or 15 families of Meekirs, at this place who shall be kept up for the purpose of clearing the roads, &c. for the future.

Should he agree, I shall further propose, that the revenue of these persons shall be for the present defrayed by government, either by a direct payment to the ryotts themselves, of the amount demandable from them by the Senaputti, or in case of their objecting, a trifle more, or by crediting him that amount from the annual tribute paid by him to government in ivory.

Should I be able during my present expedition to reduce the Nagah chiefs to any state of order, it would be desirable further, to try and settle a few of these men in the neighbourhood, on the East bank of the Dhunsiri, allowing them to occupy any lands they choose, exempt entirely from all rent or taxation, until such time as matters shall be so changed, as to seem to call for fresh arrangements; as however this is mere speculation, I shall pursue it no further at present.

While at Bar Pathor I was visited, on invitation, by the Phokun or chief of the Rengmah tribe of Nagas before mentioned, who complained of the loss he had sustained, together with his tribe, by the abolition of the former establishment of *Kutkees*, or, I might call them, supercargoes, who were formerly the medium of communication between this race and the merchants, in all their dealings, through whom all orders, and communications to the Nagas passed, begging their restoration, together with the small quantity of lands, &c. which these persons enjoyed as a remuneration for their services.

From the short conversation I had with the Phokun, he was anxious not to stay, on account of some religious festival which commenced 2 days afterwards; he stated that the lands and pykes were bestowed on his grandfather and father, for services done in the time of the insurrection of the Muttacks or Moamarriah tribe, in preserving the property, &c. of the then Bor Gohain of Assam; that he had applied to Mr. Scott, on the subject, at Gowhattee in person, and had received assurance that his claims should be considered as good, but that now the whole lands have been

taxed, the *kutkees* abolished, and that his authority and rank have fallen so low, that scarcely his own tribe acknowledge him.

I regret that I am not acquainted with the reasons, on which the arrangements now in force were adopted, sufficiently, to enable me to enter into a full detail of the case, but you may be able from what I have stated, to refer to the documents, I have now with me, and form an opinion, whether on payment of a small tribute in ivory, which they are, I was informed ready, and willing to pay, the remission to the extent required might not safely be effected.

The Phokun further expressed a desire to be taken under protection from the attacks of the Lotah tribe of Nagas, with whom there has been an enmity existing for a long time, and he asserts, though I fear without any direct proof (he promised to produce witnesses before me at this place to depose to the fact), of the village called Beloo, not far from Mohong Dezo-oah, having been attacked by a party of Lotahs from the village of Tagdie, last year, and one man and a child murdered. On this subject I shall again address you when the evidence shall have been adduced, but may observe that the trade of the Lotah Nagas being completely in the power of the Principal Assistant Commissioner of Seebpore, some injunctions might be conveyed to the Naga Hazarri of that tribe holding him responsible for any repetition of such acts.

Looking at the map of this country, you may observe that the inclination of the lime formation of the Nambur Nuddie will exactly, or within a trifle, correct the points at which it has also been found at the Falls of the Jumoonah, near Mohong Dezo-oah at Langolar, spelt 'Lowrung' in Captain Pemberton's Map on the Kopili, and so on towards Sylhet, not improbably forming one long line of similar formation throughout.

Note on the Brahooees.—By CAPT. HART, Bombay Army.

These tribes are the descendants of 'Braho,' a Bulooche, who emigrated, about the second century of the Hejira from Aleppo to Mukran : some years after his countrymen had settled there, he fixed his abode at Koliva, a few days journey to the westward of Kelot which city was then inhabited by the Tajuks, over whom ruled a Hakim from Herat, the seat of sovereignty. These Tajuks were a turbulent and overbearing race, noted for their hatred to the yoke of Herat. Several of their Hakims had been slain in popular commotions, and at length the part was considered of such danger, that a newly appointed governor

exacted an oath from the heads of the tribe, that they would not destroy him by the sword or poison, before he ventured to enter the city. On the strength of his fancied security, he harassed the people by his exactions, and his death was in consequence decided on. To adhere to the letter of their bond while the spirit was evaded, five hundred of the Tajuks baked cakes of bread, in which they mixed up stones and cotton with the dough. These they concealed under their garments, and attended the Hakim's Durbar. A dispute soon arose between him and one of the landholders, and the passions of the assembly being excited, they stood up of one accord, and slew him by blows with the cakes. They then determined on choosing a Governor for themselves, and 'Braho,' whose countless flocks and herds entitled him to consideration in the country, was solicited to take up his residence in Kelat as their Lord and Master, he declined complying with their request, on the plea of preferring a life in the wilds to the confinement of a city, but offered his youngest son 'Kumbur' to their notice, as one for whom he had not made any provision, and who was therefore free from those ties which bound his brethren to their homes. After much urging, 'Kumbur' consented to become their Chief, the Tajuks stipulating to furnish him with eighty horse as a body guard, to build a house, and supply him with every necessary of life. After a few years, 'Kumbur' forced the several tribes of Moguls and Baloochees in the neighbourhood of Kelat to acknowledge his supremacy, and in process of time the whole of Mukran and Northern Kunchee was ruled over by his descendants.

'Braho' had seven sons :

- | | | | |
|-----------|-----------|---------------|----------------|
| 1 Meerun, | from whom | are descended | the Meeranees. |
| 2 Simael | " | " | Simalanees. |
| 3 Roden | " | " | Rodenees. |
| 4 Peerak | " | " | Peerkanees. |
| 5 Yug | " | " | Yugur Menguls. |
| 6 Khadr | " | " | Khidranees. |
| 7 Kumbur | " | " | Kumburanees. |

These are the real Brahooee tribes, but many others subject to them, are now included in that appellation.

They are,

Tribe.	Subdivision.	Begin.	Place of abode.	Estimated No. of families.	Present Chief.	Remarks.
Saraban	Reisane ..	Mogul	Kuhnuk ..	300	Asud Khan.	The Sarabans, or those of 'the right hand' held Inams and Jagheers from the Kelat Khans on whose authority they considered themselves dependant.
	Shahwane ..	Bulooche ..	Moostoong.	1,000	{ Mahomed Khan.	
	Surpurra ..	Mogul	Kurdugan..	12,000	Synd Khan.	
	Bungoolzye	Syuds.....	Tepulinjee.	2,000	SherMahamed	
	Mahomed Shahee ..	{ Mogul	Moostoong.	1,000	Deenar.	
	Koord.....	Ditto	{ Dusht-i- be Dowlut }	400	Loll Buksh.	
	Lahree	{ Rind Bu- looche .. }	Nagao.....			
	Rind	Bulooche ..	Makron....	12,000	{ Loll Buksh. Bulooche Khan.	
Jhalaban ..	Zahree	Mogul	Gatt.....	3,000	{ Meer Say Mahomed, Meer Baker.	The Jhalahans, or those of 'the left hand' were Zumeendars who yielded by slight obedience to their ruler, their lands being hereditary.
	Mengul	Bind	Nall.....	2,000	PraheemKhan	
	Mahomed Hoosainee }	Mogul	Kohpoosht.	30,000		They respectively occupied seats on the right and left in the Durbar.
	Beegunjaw ..	Prind	Wud	500	Kuhrer.	
	Zugur Men- gul..... }	Brahooee ..	Nooshky ..	1,000	Ahmud Khan.	
	Mughee	Bulooche {	Jull and in Mukran. }	12,000	Ahmud Khan.	

A three weeks sail in search of Health—Province of Arracan—Kyek Phyoo. —Its Harbour, Productions, Capabilities, Geological features, Visit to an active volcano. By HENRY HARPUR SPRY, M.D., F.G.S., &c., Secretary to the Agricultural and Horticultural Society of India.

Circumstances rendering it necessary that I should have recourse to a little relaxation, in consequence of a severe attack of illness, I determined to take advantage of the sailing of the H.C.S. Amherst, to the coast of Arracan, on the 19th of last month (Feb. 1841) to secure a passage in her and visit the port of Kyok Phyoo, at Ramree. The ship left Calcutta, in tow of the Ganges, Government Steamer, and reached the Sand Heads at the close of the third day. Thence we proceeded under sail, and at the expiration of four days, dropt anchor in the picturesque, and most spacious harbour of Kyok Phyoo. We were there in exactly a week from Calcutta. The cruize from the Sand Heads across to the coast of Arracan, was a most delightful one. The wind was gentle, and the sea so smooth, that out of a party of 400 sepoys and camp followers who were on board, only two that I am aware of, underwent the miseries usually attendant on a sea voyage when undertaken for the first time.

On the morning early, of the day preceding the one on which we arrived, land was visible, and the entire day was spent in coasting along the

mountainous, rugged, but thickly wooded islands, called the Bolongas or broken islands. As night closed in, the anchor was dropt about a league outside the harbour of Kyok Phyoo.

There are two or three 'dangers' in the passage way, and it becomes therefore desirable, that day-light should exist while steering through the harbour. On one occasion, however, the Captain of the *Amherst* stood in on a bright moon-light night and took up his right position without the occurrence of any accident. With the exception of the rocks here alluded to, the entrance of the harbour is deep and spacious.

I confess, as we sailed in, early the next morning, the general appearance of the harbour and scenery surrounding it, created a most favorable impression. The first object which attracted my attention was the Saddle Island. It stands on the south side of the entrance of the outer harbour, (there are, as it were, two harbours) is about three quarters of a mile, or a mile in circumference, and has a peak of about 120 or 150 feet in height. On it, a neat bungalow has been built by the present Marine Assistant, Captain Brown. Here it has become the fashion of late, for parties of pleasure to resort, to pass the day in the agreeable occupation of shell picking, coral gathering, bathing, ship sighting, or if it suits them better, drawing, reading, or geologizing, while the health inspiring breeze of the sea is blowing on their frames.

As the ship sails along, new and striking peculiarities claim the observer's attention, and some of the earliest of these, are, the cantonment bungalows of the officers which stud the beach at irregular intervals, for a distance of three miles as far as 'Sandy Point;' this forms the northern promontory of the inner harbour, and on it stands a two 12-pound battery, with an appropriate flag staff, under the designation of 'Fort Dalhousie.' On the land a little elevated above the sea shore, and about a hundred yards from the pebbly and sandy beach, with nothing to impede the current of the refreshing sea breeze as it comes off the ocean, are seen those cottages on piles, known as bungalows, overhung and shaded by the lofty *Dipterocarp*i; the bank on which they stand is of yellow sand, and along the beach at sunset, or in the morning, the valetudinarian may gallop without intermission on the active sure footed pony of the province for three good miles, and court the healthful breeze. A small thatched bathing house stands conspicuous. It is the resort, every morning, of the lovers of bathing, who delight to wrestle with the waves and luxuriate in the sea.

Kyok Phyoo has not reached that pitch of celebrity yet, as to call for the erection of bathing machines, but no beach in the world is

better adapted for them, if the taste of the public should ever turn that way.

The groups of large islands, covered with deep rich foliage, which form the harbour of Kyok Phyoo, rise abruptly from the sea, and afford water beside them so deep that ships can sail in safety. The hills are clothed to the top in dense and luxuriant vegetation, while the peaks of some run up to heights that are computed to extend to 7 or 800 feet.

The harbour of Kyok Phyoo, as I have before remarked, is extremely picturesque, and in its conformation and capabilities, reminds me forcibly of the one at Trincomalee—Like the latter, it is divided into what may be termed an outer and an inner harbour. The outer one being more of a roadsted than the inner, which is sheltered by the point of land on which the flag staff stands, and is safe for ships in all weathers. The harbour and roadsted, with the contiguous extensive deep bay, known as Fletcher Hayes' Straits, which stretches away amidst a series of many beautifully grouped islands between the eastern side of Ramree and the main, constitute an anchorage that I am assured would afford safe shelter for the shipping of the whole world.

With all these new and engaging features before me, it was with no ordinary feelings of delight that I stepped on shore to investigate and examine for myself. I found that a great and most beneficial change had been wrought of late in the physical condition and aspect of the station of Kyok Phyoo. The dense *low* jungle which formerly choked the cantonment grounds, had, through the active exertions of the local authorities, been effectually removed, as had the brush-wood and most of the timber trees which grew on a contiguous low belt of sandstone hillocks, which formed the south western boundary of the station. Drains for the outlet of accumulated water had also been cut, and temporary bridges erected. The last it may be expected will shortly be superseded by more becoming brick ones, as the materials, I was informed, had long been lying accumulated on the ground.

The salubrity of the place has by these measures been much improved, and the first intimation almost which I received on landing, was the gratifying assurance, that during the whole period of service (two years) that the regiment then on the island on duty had passed, not one death had occurred among the officers, or, (I believe I am correct in this) any one of them been obliged to leave it from sickness. One great and powerful complaint still exists against Kyok Phyoo as a regimental station. The Hindoostanee soldiers suffer dreadfully from

sickness. I was curious to learn, if possible, the cause of this, and the explanations which were offered me, in a great measure satisfactorily account, I think, for so unfortunate and much to be regretted an occurrence. The Arracanese or Mugs, as they are usually called, *invariably* (there is no exception to the practice that I could learn) build their dwellings on piles, so that the floor of the room is not only elevated a distance of two or more feet above the surface of the ground, but a *current of air* passes freely underneath it. At the jail, which is a series of spacious well continued erections, the system of the country has been followed, and the prisoners are housed in a number of large dwellings within a strong stockade. It is left for regimental sepoy to be experimented on, to test the value of Mug wisdom, by doing without piles and hutting the unfortunates in the manner now in use. To the men instead of being hutted as the people of the province are, and indeed *as the transported felons are*, (for Arracan is a penal settlement and Kyok Phyoo has a party of above three hundred convicts stationed at it,) are compelled to live in low or unraised huts, which are built in a series of lines forming streets, and in such a damp locality, that I (although it was then far advanced in the month of February) sprung a couple of snipe out of the grass, within a yard of these abodes.

After strong, and I believe repeated representation, not only on the part of the duly constituted medical authorities, whose business it is to watch over such duties, but by the chief Military authority also, I am told that the Military Board sanctioned the formation of raised boardings or *matchauns within the huts*, so as to enable the sepoy to sleep off the ground. But this is not enough. Whatever dampness or exhalation is emitted from the soil (and that *something* noxious does transude the practice of building, which the genius of the people has suggested, proves) is still pent up by the mat walls which reach the ground and exclude the free circulation of air underneath, an observance which, as I have just remarked, is deemed essential to the preservation of health. Common humanity dictates the measure, and a State characterized for its considerate attention to its army, ought without hesitation to hasten to remove a grievance so fully calculated to produce the suffering and disastrous consequences which are now experienced.

There is another and I think not sufficiently regarded cause operative of the suffering which the sepoy undergo from sickness, a portion of the men, in the Volunteer regiments are Mahomedans. They are proverbial for their careless extravagance. 'A Mahomedan (said Ameer-ul-omrah the second son, and for some time minister of Mahommed Ali the

former Nabab of the Carnatic) was like a seive—much of what was poured in went through; while a Hindoo was like a sponge which retained all, but on pressure gave back, as required, what it had absorbed.' And so at Kyok Phyoo. The Mahomedan sepoys to gratify their habits of debauchery, borrow from their more thrifty Hindoo brethren who *stint themselves of the common necessities of life* to gratify their saving propensities, and rather than purchase good sound, but expensive food pinch themselves with half meals of the worst description. The Hindoo sepoys of the 65th regiment brought away with them, I was assured by the officers, on their return to Calcutta upwards of 40,000 rupees which they had saved during their two years and half tour in the Province.

Leaving this painful subject for others of a more pleasing kind, I hasten to complete my observations regarding the site of the Cantonment of Kyok Phyoo. The soil is almost entirely sand, but yet much vegetation till recently abounded and even now the many lofty *Dipterocarpi* speak plainly of the adaptability of the ground to produce rich and luxuriant growths. These *Dipterocarpi* early attracted my attention. They are the trees, whence that (to the London market at least) novel article of commerce, known as the Gurjun or wood oil, is obtained. On examining into the process by which this most valuable product is obtained, I found that the practice was to cut a large notch something of the form of a rude arch into one side of the tree near its root, a depth of three or four inches, with the base sunk from the external edge inwardly to make it cup-like, so as to hold the oil. A fire is then kindled in the aperture for a few minutes, by which means, it appears, the sap vessels are stimulated, and the oil once set an oozing flows gradually down, drop by drop, till the cup-like hollow at the bottom of the notch becomes filled, when it is dished up, and set aside for use; successive supplies are for a long time in this manner obtained.

An abundance of these trees are to be seen in every direction about Kyok Phyoo, and I am told are equally plentiful on the island of Cheduba and elsewhere throughout the line of coast. While on the subject of these trees I cannot omit mentioning a circumstance connected with the produce from them, which although of somewhat a private nature, is yet of sufficient peculiarity to merit recital. More than two years ago, when in correspondence with Dr. Royle, I procured eight large casks full of the wood oil and shipped it for London to be sold in the London market and its value fairly tested. I knew that the Portuguese in the days of their early career in India had all dealt largely in the article, for Bolt in his 'Considerations of India,' particularly alludes

to it. I knew moreover that for time out of mind the people of the Province of Arracan and of Burmah in general, had used it for all sorts of work; that moreover Roxburgh alludes to it, and that in fact it was an article well known in India. What was my surprise at finding from Dr. Royle that so ignorant were, and still are, the authorities at the London Custom House of the nature of this substance, that they positively deny that it is a raw material, and will consequently only admit it as a '*Manufactured article*', which entails the payment of a duty that the oil itself would never sell for. In his recently published work on the productive resources of India, Dr. Royle has pointedly alluded to this lamentable ignorance on the part of the London Custom House authorities of some of the products of India.

To return to remarks on the station. The bazar is clean and well arranged. Beside the various roads young timber trees have been planted. These are not in the most flourishing condition. It may surprise some to be told that after so recently denuding the soil of the jungle, that trees should again be planted, but arborescent avenues would be a great ornament, serve to keep down temperature, and not to promote sickness. Many of those now planted are dead and it will be many years before any will assume a commanding appearance.

The people are decidedly superior in physical conformation to the Bengallees. They are an athletic and intelligent race. Their agricultural and mechanical appliances show it, and in their dealings with the Europeans they evince an independence of character that surprises a person accustomed to the manners of the obsequious Asiatic.

The harbour abounds with fish, and I was particularly struck at the ease and facility with which a daily supply was obtained for breakfast. Half an hour before the usual time for eating the meal the word was passed for '*Mutchee mar.*' At which command the boatmen took the net and proceeding to the beach threw in the lines, and in ten minutes three or four fine mullet were presented to the cook.

Besides these mullet, the pomfret are noted for their high flavour, and the oysters are of an excellent kind. At certain seasons, at the close of the rainy months, innumerable boats go off to Combermere Bay, 'an extensive but somewhat shallow roadsted, contiguous to Kyok Phyoo harbour, and here fish for the polynemous, the sounds of which they cure in large quantities, and sell to the China junks which annually pay a visit to the coast for the purpose of trading for these and other articles. It is the opinion of a gentleman, who has had opportunities of making abundant enquiries, that the fishing for isinglass might be conducted to a great extent.

Only the day before I arrived, a Chinaman, (the only one indeed who lives at Kyok Phyoo) who acts as agent for his countrymen who trade on the coast, bought up five maunds (400 lbs) of these fish sounds for about 25 rupees a maund.

A small rock, known as the Pagoda Rock, at the mouth of the harbour, furnishes the edible birds' nests in small quantities, and the government derives an income from it as well as from wood oil, wax and honey. In the year 1835-36, the collections of revenue on account of the edible birds' nest found at the island of Ramace stood at 106 rupees and that for the whole Province at 4160 rupees in the Government books, while the collections on account of form of wood oil was 17 rupees—each oil 162 rupees—bees wax and honey 660 rupees. The nests the China junks carry off. Such are the chief productions of the harbour. Many other fish of course abound, but the pomfret, the mullet, the beektee, and the oyster stand foremost.

I must now allude to another subject, and that is one of considerable importance. I allude to the manufacture of salt. The water of the harbour at Kyok Phyoo contains a much larger quantity of saline matter than that in the Sunderbunds. On comparison it will be seen, I believe, that the one holds near 20 per cent more saline matter in solution than the other. The government has already taken advantage of this circumstance, and has caused Golahs to be erected, whereat they store salt, which the people of the Province are but too happy to supply at 4 annas a maund. The manufacture is solely by solar evaporation, and the preparation is of the finest quality. Such opportunities must demand greater attention, and a few years more will probably see this superior article, superseding, almost to utter extinction, the dirty earthy article which is now obtained from the Sunderbunds.*

One of my earliest enquiries, after landing at the picturesque station of Kyok Phyoo, was, to enquire into the progress made in the recent coal discovery.† I found that the principal locality here alluded to, was not on the island of Ramree itself, but on a rock off the island about a mile, known by the name of 'the Cap Island,' but that minute traces of it had been found at a point of the main island which is nearest in contiguity

* My friend and correspondent alludes to the *Salt as sold in the bazaar*: it is perfectly white, and pure when first made, but the process of removal, and weighing dirties it in some degree and the adulteration by the retail dealer brings on the earthy look he alludes to: 7, not 4, As. is the price given.—H. T.

† I beg here to state that what is here stated regarding the coal localities at Kyok Phyoo was reported by me to the Secretary of the coal Committee and has since appeared in Dr. McClelland's Journal.

to this rock. The specimens, which I brought away will afford good average pieces of coal and its immediate connected formations. I took an early opportunity of availing myself of the kind offer of Mr. Brown, the Marine Assistant to the Commissioner of the province, and Col. Hervey, to whose exertions this interesting discovery I believe belongs, to visit the Cap Island and examine the formation. I found it partaking, as might be expected, when the general character of the line of coast is taken into consideration, of all the characters which denote active volcanic agency.—The rock itself is in great part made up of sand-stone, but so distorted are the strata by the upheaving force, that in places they appear at an acute angle, and even vertical, while they are so appositely placed as to convey the idea, that at this point some confined force had here found an outlet, and split the incumbent bed. The rock runs up to a peak.

On one face of the rock a thick deposit of marly earth is seen, and on it an abundance of vegetation thrives. At the seaward point of the rock, and barely above high water mark, the coal is found. The sand-stone strata here, though not so highly distorted as in the more central part, is still at an acute angle. It is intersected by a bed of fatty marl of about a foot in thickness, and amidst its substance, and sometimes in a shaly deposit, the lumps of coal are found. I say lumps for as yet no continuous seam of coal has been discovered, but all is yet in its infancy, for, besides scratching the surface soil for a few inches, nothing has been done to test the extent of the formation.

I confess, when I look at the position of the place, I see no immediate prospect of a supply of coals; and taking the difficulties of keeping out the water into consideration, (even supposing that a continuous seam was found) with the great dip of the strata, nothing but an outlay for machinery could fairly test it.

Leaving the Cap island, the next locality that I visited, was the point of land on the island of Ramree, most contiguous to the Cap island. From the direction of the outcropping coal strata at the Cap island, it was inferred that similar indications might be found at the point of land now adverted to, and a close search being made, a formation identical with that at the Cap island was found with thin traces of coal. The dip here is equally great with that at the Cap island, and would require a shaft to be sunk, through the intervening sandstone stratum, to enable the searcher to ascertain if a bed of coal of any consistence did exist.

When I came away Captain Lumsden, the Principal Assistant, was sinking two pits at a part of the island, some little way, perhaps half a

mile, from the spot where the indications of coal were observed, and the laborers had got perhaps ten feet;* but no effectual effort is likely to be made, nor indeed, is it possible under existing circumstances, for it appears that no expense is permitted to be incurred, while of machinery—not even a whim for raising the rubbish or water is erected.

Every disposition exists on the part of those in authority at Kyok Phyoo, to carry out the investigation, but they say, and say justly, that they have no funds placed at their disposal for doing so, and, out of their own pocket, it is too much to expect that they should defray the charges. The consequence is, the poor laborers are left to go unpaid, and great dissatisfaction is felt accordingly.

To leave this subject. After visiting the localities now mentioned, a proposal was made to sail across the harbour to the eastern point of the island, and proceed to the summit of a lofty hill which stood about three mile inland, and on which is the cone of an active volcano. The suggestion was immediately acceded to, and at four o'clock in the afternoon our party began to ascend the rugged path which conducted to this interesting object. I had heard that two or three other Europeans had already visited the crater, and that at the close of last year it was emitting smoke and ashes. Our companions were several boatmen, and each man, more from habit than singularity, carried, the never failing accompaniment of a mug a *dhow*, which is a large powerful knife in shape about the size of a regulation sword broken of in the middle.

After various humorous adventures, in the midst of the dense jungle, and traversing the crater of a small dried up volcano, we succeeded in reaching the anxiously sought hill, and when we reached the top, most amply rewarded we were. Never did I behold a more delightful piece of scenery. The view commanded the whole of the northern portion of the island, and that extensively sheltered anchoring ground, before alluded to, under the name of Fletcher Hayes' Straits.

But to the immediate objects of our visit. The cone was beautifully formed of the erupted mud, and covered to the very brink of the centre with thick verdant grass. Out of it grew luxuriant *Casuarina* trees. And here I cannot avoid mentioning a very remarkable circumstance connected with the appearance of these trees. Nowhere, as far as I could learn, do they appear, except on the cones of the volcanos, of which there are several, to be found on the island of Ramree. More than once when hid

* I have since heard from Captain Lumsden that the work has been abandoned as hopeless.

amidst the dense foliage of the forest, and at a loss in what direction to turn, we sought an open space and searched for the *Casuarina* trees and in this manner were attracted to the desired spot. On the edge of the crater and about the sides of the cone amidst the grass, I picked up shells, (helix ?) pieces of indurated clay, quartz, and clay intersected with spar. They all go to show the character of the disrupted material. The edge of the crater was most uniform, and its diameter was about twelve feet. Its interior was filled with warm liquid mud, and on plunging down a rod, it passed on for about eight feet, and then struck in a thick plastic substance. After examining it in all directions, and satisfying our curiosity to the utmost, we hastened to return, and at length succeeded in reaching the boats, highly gratified and delighted at the success of our adventure, and the interesting novelty which it had unfolded to us.

I left Kyok Phyou much pleased with the peculiar and many various features which it presents, and returned to Calcutta after an absence of three weeks, much improved in health by the excursion.

Description of some Ancient Gems and Seals from Bactria, the Punjab and India.

I. GRECIAN.

Whether it is, that the collection and study of ancient gems and seals, is less interesting in itself than the study of coins, or that it leads to less immediate and satisfactory results, I am unable to say; but perhaps both of these reasons may have combined to render the one less attractive than the other. But whether from one or from both of these causes the effect has been the almost total neglect of this study in India; although the specimens scattered amongst the numerous individual collections must now be valuable, as well as easily accessible. Some of these I have collected together in the accompanying plate, in the hope that others may be induced to make public what they may have stored up in their cabinets.

The earliest notice of an ancient gem procured in India, of which I am aware, is in Vincent's *Ancient Commerce*, vol. 2, p. 760, where he makes mention of 'an emerald belonging to the Archbishop of York, engraved with a Medusa's head, of Grecian sculpture, and brought from Benares.' And in the *Trans. of the Royal Asiatic Society* vol. 3, page 139, there is an engraving of 'an ancient Hindu intaglio,' with a long rambling description, by Colonel Tod. The gem itself is a beautiful one, representing Hercules.

naked, his head diademed, leaning his left hand on his club, and holding out in his right hand a little figure of victory, which is extending a wreath towards the hero; to the right are two Sanscrit letters, one above the other, in the same position, and apparently of the same age, as those we see on the coins of the Guptas, forming the word *Aja*; which is probably only a monogrammatic contraction for *Ajaya*, the invincible, a very appropriate epithet for the ever victorious Hercules.

I have no doubt that many other notices of ancient gems procured in India may be found with a little search; but I have neither the time to look for them, nor the ability to elucidate them, should my search be successful; and I therefore trust that the brief remarks, which I am about to make, may be received with indulgence.

No. 1. Brown translucent agate, procured at Benares. Bare and bearded head of Hercules to the left, his hair short and curling; his great strength shown by his short brawny neck; and his club placed behind his head. This seal is of beautiful workmanship, and in exceedingly bold relief and the engraved parts are highly polished.

No. 2. In Colonel Stacy's collection, purchased, I believe, at Delhi. It represents Omphale standing, inclined to the left, and bearing the club and lion's skin belonging to Hercules; she having given him her distaff and bright colored robe in exchange for them. The engraving of this gem is well-done, but it is not in my opinion at all equal to the other—and yet her air of fancied strength assumed with the spoils of the Nemean lion, and the hero's club, is capital; and the making her grasp the club with both hands, displays at once both the woman's weakness, and the nice observation of the artist.

As these gems represent mythological persons of ancient Greece, they must have been brought into India from the North West, and as many gems are yearly discovered in ancient Bactria, I have little doubt that these, and indeed all gems purchased in India which bear Grecian subjects, must have come originally from ancient Bactria, the seat of the nearest Grecian colony, and where we know, from the beauty of the earlier Bactrian coins, that the arts must have flourished in the greatest perfection.

If these gems then owe their origin to Bactria, it is not improbable that the two just described may have been engraved during the long and prosperous reign of Euthedymus, all of whose gold and silver coins, yet discovered, bear the figure of Hercules; for it is but natural to suppose, that a Prince, who for so long a time exhibited this deified hero upon his coins, would likewise have had the head, the figure, and even the history of the

GEMS and SEALS

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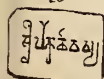
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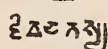
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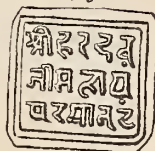
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same personage engraved upon his seals.* Such at least is my opinion, which is greatly strengthened by the beauty and depth of the engraving, and by the peculiar mode of representing the short curly hair, which is the very same style that we see upon the tetradrachms of Euthydemus.

No. 3. A red cornelian, much worn and slightly fractured below, having a bare youthful head to the left, with a scarcely perceptible beard and long curling hair, with the chlamys fastened upon his shoulder. The execution of this seal is very beautiful; and the relief is bold, deep and highly polished. It was procured at Lucknow, but I am not sure that it may not owe its origin to modern Europe; the antique chlamys, however, gives it a delightful claim to be considered ancient, which the beauty of its workmanship makes me unwilling to dispute.

No. 4. A small red cornelian, purchased at Amritsir. Its execution is very inferior, and shows that it must belong to a declining period of the arts in Bactria. It represents Mercury half turned to the left, with his chlamys or short cloak over his shoulders, his caduceus in his left hand, and an undecided object in his right hand.

No. 5. A Súlímáni, or light brown translucent agate, having a middle layer of milkwhite chalcedony, from Benares. It is of excellent make, but is very much worn, only a few strokes of a long inscription being now visible. On it are represented two standing figures, male and female. The female to the left is clothed to the feet, her head is surmounted by a basket, and encircled by a halo—she holds in her left hand a cornucopia, and in her right a torch, under which is an undecided object, resembling a bird. To the right the male figure is clothed to the knees,—his head dress is surmounted by a pair of wings, and his head encircled by a halo: he holds a trident in his left hand, and his right hand is raised towards the cornucopia held by the female figure. Between the two figures is a pitcher, and over them an indistinct object.

The two figures on this gem are, I believe, from their peculiar emblems and attributes, Osiris and Isis, or the Sun and Moon, as deified by the Egyptians. Though the worship of these divinities was popular enough in later Rome, yet I think it was never so amongst the Greeks, and more especially not amongst the distant Greeks of Bactria; wherefore I am

* Since writing the above, I have received from Capt. Hay, impressions of two copper coins of Demetrius, both of which have the head of Hercules bare and bearded as on this seal, and with the club behind the head. I am therefore inclined to believe that the bare and bearded head on the copper coins of Euthydemus is that of Hercules. The discovery of these coins of Demetrius bearing precisely the same type as the seal, in my opinion almost confirms the correctness of what I have advanced as to the period when this may have been executed.

led to suppose that this stone may have been engraved in Egypt during the fostering and happy government of the earlier Ptolemies.

No. 6. A red cornelian, of barbarous execution. Two standing figures, male and female, with a cross between them, the male figure holding up a wreath in his left hand. Though this is probably the work of modern days imitated from an antique, yet many seals of equally barbarous workmanship are yearly found in ancient Bactria, all of which most probably belong to the latest period of the Grecian dominion in that country.

No. 7. A white cornelian of milky hue, very thick and round, having a hole pierced from the top to the bottom. It represents a male figure standing to the front, his face turned to the right, he is clad in the Indian *dhoti*, and wears the sacred thread across his breast; flames spring from the top of his head, which is encircled by a halo. In his right hand he holds a trident, and in his left hand, which is placed on his hip, he carries a *lota*, or drinking vessel; and a loose robe, or *chadr* hangs over his left arm. Legend to the left in Bactrian Pali characters 𑀧𑀲𑀭𑀸𑀓 which is probably some compound of *jas* (Sanskrit यशस्) fame; such as *Jasvatisa* (for यशस्वन्ती) 'of the renowned.'

This beautiful gem came from Cabool: the execution is good, and the design graceful; the position of the body is easy and unrestrained; the limbs are free, and the outline of the figure and the folds of the drapery are naturally and simply expressed. The figure is the same as that we find on the coins of the Indo-Scythian Kadphises, excepting that the face is turned in a contrary direction. The Indian *dhoti*, and the sacred *poita* of the superior castes are so distinct on this gem, that I cannot hesitate in ascribing its origin to India, and in assigning it to the period when the Indo-Scythian Kadphises reigned over the Punjab and Cabool. In execution this seal is decidedly equal, if not superior, to the finest gold coins of Kadphises, and I cannot therefore be far wrong in attributing its age to the reign of that Prince, who must have flourished before Kanerka; for the money of the latter became the type of several series of the Indian coins down to so late a period as the Mahomedan invasion: while the coins of Kadphises were not imitated except by his immediate successors, who may have issued the barbarous gold coins with a man and bull on the reverse, (see Figs. 45, pl. 33, vol. 4, J. A. S. of Bengal.)

On a few gold specimens, and on all the copper coins of Kadphises, the figure which we see on this gem, is represented standing before a bull, and not alone, as on the commoner gold coins of that Prince; and this is also the way in which the Deity is placed on the gold and copper coins of the

unknown prince, noticed above as being one of the successors of Kadphises. On those coins we invariably find the legend OCPO. which is no doubt the name of the figure; and consequently we may pretty safely take this word OCPO to be the equivalent of the Bactrian Pali legend of the gem. Now Professor Lassen has happily explained *Okro*, by *Ugra*, a name of Siva, of whom indeed the trident and the sacred bull *Nundi*, are peculiar and unmistakeable attributes: and hence it follows that the figure on the seal must be that of the God Siva.

No. 8. A Cameo, in the collection of Sir Alex. Burnes, of most admirable workmanship, in bold and beautiful relief. It represents a half length of Silenus to the right; his head bald and bearded, and bound with a wreath of vine leaves; with a flat nose, sparkling eye, and laughing, all betokening the merry companion of Bacchus. He is holding up his left hand before his face with the fore-finger, and little finger raised, and in his right hand he is carrying his drinking can in a sloping direction. A thyrsus is placed behind him, and his robe is thrown over his right arm.

In this exquisite little gem Silenus appears, cup in hand, telling some humorous story, replete with the wine-inspired wit, broad fun, and shrewd pithy remarks for which he was celebrated: the sly expression of his face is excellent; and his jolly corpulent figure reminds us at once of 'laughter holding both his sides;' while the sloping way in which he holds his cup shows either that it is empty, or that he is so tipsy, and so taken up with his story, which he is impressing with the action of his left hand more earnestly upon his hearers, as not to know that he is losing his wine; or we may suppose that, having drained the cup, he is exclaiming 'Papaiapœx!—what a sweet taste it has!'

The exceeding beauty of this exquisite little Cameo of the Grecian Falstaff, proves that it must have been engraved at a time when the arts in Bactria were in the very highest perfection; and consequently during the earliest period of the Bactrian power: and I think it highly probable that this gem may have been executed during the reign of Agathocles, whose coins usually exhibit devices belonging to the worship of Bacchus; and no doubt upon his seals and gems there were represented stories and figures emblematic of the same worship.

The coins of Agathocles, are, in my opinion, the most beautiful of the Bactrian series as works of art, and therefore I am inclined to place him before Euthydemus and Demetrius in the list of Bactrian Princes; and to assign him the country of the Parapamisades as his kingdom, Nysa or Dionysopolis for his capital, in which 'City of Dionysus' I suppose

that this beautiful Cameo of Silenus was engraved, at the same time that the Bacchic coins of Agathocles were united; that is about 240 B.C.

No. 9. A red cornelian, in the collection of Sir Alex. Burnes. It is of coarse execution, although its design is good; and is probably only a copy of a better gem.

No. 10. Likewise in the collection of Sir Alex. Burnes; this seal is of very inferior execution; the subject is similar to that of the coins of the Grecian colony of Falisci in Italy.

2. SASSANIAN.

No. 11. A red cornelian, from Amritsir, very thick, and with a hole near the top for suspension; the two streamers to the right are just the same as those that we see upon the Sassanian coins.

Nos. 12 and 13. These were sent to Mr. Prinsep by a gentleman residing in Persia; on No. 13 there is a Pehlvi inscription, but I am not able to offer any thing myself regarding its interpretation.

No. 14. In the possession of Colonel Stacy.

3. HINDU.

In the Journal of the Bengal Asiatic Society for 1837, at page 968 Mr. Prinsep says—'General Ventura has also brought down with him some beautiful specimens of seals of the same age, which I shall take an early opportunity of engraving and describing.' Unfortunately this opportunity was lost by Mr. Prinsep's sudden illness. He had however sent me an impression of the principal seal referred to, (No. 15) which I will now describe.

No. 15. A plain thin cornelian, bearing a beautiful female head to the right, the hair plaited in two braids over the fore part of the head, and gathered into a large bow at the back, where it is tied by a ribbon, the ends of which float behind. Her shoulder is covered by a robe, from the midst of which her right hand appears, holding a lotus flower before her face. Inscription below in ancient Sanscrit, *Késava-Dásasya*, (Seal) of *Kesava-Das*, the servant of Vishnu.

At what period this lovely gem was engraved can only be ascertained approximately by an examination of the forms of the Sanskrit characters; of which the letters *k* and *d*, and the inflected vowels are similar to those found in the inscription recording the repairs of the bridge near Lúnagurh, which we know must be subsequent to Asoka, or after B.C. 200; while the *s* and *sy* are of a later period, and similar to those found in the inscriptions of the Gupta family, which, in my opinion, cannot be later than A.D. 400. The peculiar formation of the *sy*, I consider to be one of the

best tests for ascertaining the age of a Sanskrit inscription, and therefore I feel inclined to believe that this seal is of the age of the Guptas. If the name may be considered as a title declaratory of the religion of the owner of the seal, we shall have a direct proof that *Késava Dás* (the servant of Vishnu) was of the Braminical faith; which, coupled with the probable age which I have already assigned to this seal, would fix the period of its execution to the reign of one of the earlier Vaishnava Guptas, and before the date of the Saiva Skanda Gupta. In the same way, taking the name as a declaration of the faith of *Késava Dás*, we have a clue to the owner of the beautiful face engraved upon this seal, who can be no other than *Sai* or *Lakshmi*, the consort of Vishnu, and the goddess of wealth, beauty, and prosperity, who is usually represented with a lotus in her hand. It is even possible that this seal may have belonged to Chandra Gupta himself; for the small copper coins of that Prince (vide vol. 5. pl. 38. Fig. 13 and 14. J.A.S. of Bengal) bear a similar bust with the hand raised before the face, and holding a lotus blossom; beneath which is the Prince's name. This remarkable coincidence of subject between the seal and the coins, coupled with the similarity of the characters of the inscription to those of the age of the Guptas, still further strengthens the opinion which I have expressed above, that this seal was engraved during the reign of one of the earlier Vaishnava Guptas, towards the end of the fourth century after Christ.

The lithographer has completely failed in copying my sketch of this beautiful seal: for, instead of a frowning elderly lady, the original represents a young and lovely girl with a gentle smile upon her face. In beauty and excellence of workmanship this gem rivals the finest coins of the Bactrian Mint; the face is exquisitely delineated, and the position of the hand peeping out from the loose robe or Hindu *chadr*, is graceful and easy. Unfortunately on the gold coins of the Guptas there are no busts with which we may compare the delicate engraving of this seal; in my opinion, however, it is far superior to many of the Gupta coins, and is perhaps even superior to the best of them; with the small copper coins no just comparison can be made, for they are few in number, and are all deficient in preservation.

No. 16. A brooch set round with turquoises, presented to Mr. James Prinsep by General Ventura. The engraving is from a rough pen-and-ink sketch by Mr. Prinsep—Below the head is an inscription in ancient Sanskrit, *Sri Kodbharasya* '(Seal) of Sri Kodbhara, the upholder or supporter of the fortress'. The initial *Sri* of this seal, which is of a later form than we find in the Gupta inscriptions, proves that

it must have been engraved subsequent to A. D. 450, the latest period which I can assign to any of the Gupta family.

No. 17. Likewise in the collection of General Ventura, there is a head upon this seal, but not so beautifully executed as that upon No. 15. The inscription, in ancient Sanskrit, is *Ajita Vermmasya*, (seal) of Ajita Vermma. From the forms of the characters I should say that this seal was of the age of the Guptas.

No. 18. A red cornelian, in the possession of Mr. B. Elliott of Patna. This seal is very neatly engraved, and is no doubt as old as the most flourishing period of the Guptas, and perhaps even older. The legend of this seal will be found engraved as No. 15. pl. 56, vol. 6. J. A. S. of Bengal, where Mr. Prinsep reads it as *Sri Lokanāvasya*, (seal) of Sri Lokanava, or, the boatman of the world: but on the sealing-wax impression, which I have now before me, the legend is clearly *Sri Loka-chhāvasya*, (seal) of Sri Loka-chhava, or the ornament of the world; from हवि beauty or splendor.

No. 19. A chalcedonic agate, or *Sulimāni*, from Ujain, in the cabinet of the late Mr. James Prinsep. It is published in the J. A. S. of Bengal, vol 6. pl. 36, Fig. 23, where Mr. Prinsep reads the inscription as *Sri Vati-khuddasya*. '(Seal) of Sri Vati-khudd.*

No. 20. A small agate, having the letters cut through an upper layer of milk white chalcedony. It was originally in Colonel Stacy's collection, and is evidently only a fragment, for on the left side marks of the cutting tools are still quite plain, while the other sides are polished. The left side is likewise perpendicular while the other sides are sloping towards the face of the seal. The remaining letters in ancient Sanskrit are.....ttasya. '(Seal) of.....(Da) tta.

No. 21. In the possession of General Court. It is an oblong seal, with a recumbent animal above the inscriptions, which is in ancient Sanskrit, and reads *Tiva-datasya*. '(Seal) of Tiva Datta,' or, the giver of wisdom.

No. 22. A copper seal, originally in the collection of Colonel Stacy, having a Bull butting to the left, with an ancient Sanskrit inscription on two sides, which is probably *Amogha-bhutas*. '(Seal) of Amogha-bhuta', or the mortal without vanity, that is, the humble individual. Now this the very title which Rajah Kunanda takes on his silver and cop-

* Of the same age as this seal is another small oval one from Pesháwur, (brought to my notice by Dr. Chapman) bearing the legend *Sri Kshatrapasya* '(seal) of Sri Kshatrapa' or the fortunate satrap.

per coins (see Nos. 2, 3, 4 and 7, vol. 7. pl. 32, J. A. S. of Bengal) the whole inscription being *Amogha-bhutasa-maharajasa-rajnya-Kunandasa*, (coin) of the humble individual, the great king of kings, Kunanda. In the same way we find that the title of Aprati-ratha, or the invincible-in-his-chariot, which is applied in the Allahabad inscription to Samudra Gupta, is repeated upon his coins :—and I have no doubt therefore that the epithet of Amogha-bhuta on this seal refers to Kunanda, and that the seal is of the same age as the coins. But on the coins the legends are in two different characters, of one common language ; the legend of the obverse being in Indian Pali ; thus proving that these two characters were in contemporaneous use, and likewise from the occurrence of the *Indian Pali* on the *obverse*, or principal side of the coin, showing clearly that Kunanda was a native of India proper, and not of India beyond the Indus where the Bactrian Pali characters prevailed. The same fact indeed may be gathered from the use of *Indian Pali only* on the seal. But that he possessed territory upon the banks of the Indus is undeniably attested by the use of the *Bactrian Pali* upon his coins, and by the localities in which they have been discovered, some of which are to the westward of the Indus, even as far as Kabul. Such being the extent of his territory, it now only remains to ascertain at *what period* a prince named Kunanda reigned over Northern India and the Punjab. In the first place then we know by the shape of the letter *m* that this seal must be anterior to the period of the Guptas, and the same may be said for the coins, on which also we have the additional evidence from the forms of the *h* and *n*, that Kunanda cannot be later than Asoka. The occurrence of Bactrian Pali on his coins is likewise in favor of this early date, for that character appears to have fallen into disuse towards the close of the second century after Christ, or perhaps a quarter of a century later, when the followers of the Brahminical faith, with the assistance of the Agniculas (whom I believe to have been the fire worshipping Sussanians) had gained the ascendancy in India over the votaries of Buddha. The use of the Pali termination *Sa*, for the Sanskrit *Sya*, proves that Kunanda was a Buddhist, and this is still further confirmed by his title, which whether it be read as *Amogha-bhuta*, the humble mortal, or as *Amāya-bhuta*, the guileless mortal, which is perhaps the preferable reading, is in strict accordance with the professed meekness and lowliness of a zealous Buddhist, and is at the same time utterly at variance with the grandiloquent titles assumed by the arrogant Brahmanists. We have thus deduced that Kunanda, who ruled over Northern India even beyond the river Indus, was a Buddhist Prince, and that he flourished certainly not later

than the reign of Asoka. Now it is almost certain that the successors of Asoka were driven out of the country upon the Kabul river by the Bactrian Greeks under Demetrius the son of Euthydemus, and it is quite certain that from the period of the war between Eucratides and Demetrius 'King of the Indians,' until the decay of the Indo-Scythian power about A. D. 220, no Hindu Prince ruled over the territory on the banks of the Indus. We have thus two distinct proofs that Kunanda cannot have flourished later than the era of Asoka, and since we cannot identify him with that prince whose other name was Piya-dasi, we must look earlier in the list for some king whose recorded history will agree with the deductions made from our examination of his seal and coins. The name given in the Grecian authors to Asoka's father is Amitrochates, which can only be the corruption of some title assumed by Bindusara, but notwithstanding the near coincidence of sound which Amitrochates bears to Amaya-bhuta or Amogha-bhuta, it is quite impossible to identify them, as the first was a Brahmanist, while Kunanda, as we have shown, was a Buddhist. It is equally impossible to identify him with the Brahminical Chandra Gupta Maurya; but amongst his immediate predecessors, the *nine Nandas*, the only difficulty seems to be with which of them he is to be identified. This is however a matter of little consequence, as the elder Nanda Mâhâpadma, and his eight sons reigned conjointly for one hundred years previous to the accession of Chandra Gupta, in about B.C. 312. The nine Nandas were therefore contemporaries of Alexander the Great.

Of the first Nanda Mâhâpadma it is said in the Vishnu and Bhâgavat Purânas 'he will bring the whole earth under one umbrella, his rule being irresistible.' He was therefore a powerful monarch. That he was a Buddhist however, I cannot affirm; although the following passage from Wilson's translation of the Mudra Râkshasa, would seem to countenance the opinion that the Prince and even his councillors were of that faith. See Hindu Theatre, vol. 2 pp. 159 60, where Chânakya the Brahman says,

There is a fellow of my studies, deep
In planetary influence and policy,
The Brahman Induserma; him I sent,
When first I vowed the death of Nanda, hither;
And here repairing as a *Bauddha* mendicant,
He *speedily* contrived to form acquaintance
And *friendship* with the royal councillors.
Above them all does Râkshasa repose
In him implicit confidence.

It is hardly possible that King Nanda and his councillors would have admitted a *Bauddha* mendicant to their *friendship*, had they been Brah-

manists; for there can scarcely have been less pollution to a Hindu in the friendship than in the contact of a Buddhist. The Bhāganat Purāna also says that Nanda and his successors were ‘Sudras, void of piety.’ The Viṣṇu Purāna adds that he was avaricious; and they both agree in stating that a Brahman was the chief agent in destroying the nine Nandas. Avarice and want of piety are the usual sins attributed to any Prince who neither respects nor entertains the Brahmans; and such sins would of course be committed by *every Buddhist King*; who like Asoka would have turned out all the Brahmans supported at the royal expense and have entertained Buddhist priests in their place. I cannot therefore help suspecting that as a Brahman was the chief conspirator against the Nandas it is more probable that the rebellion was only a religious struggle for political ascendancy, in which the Brahman Kautilya succeeded in establishing the authority of his own caste and religion under the new King Chandra Gupta; than that it was a justifiable uprising of the people, occasioned by the avarice and tyranny of Nanda.

Nanda himself was called Mahapadma; his wife was called Sumanda; and his eight sons, according to the Vishnu and Bhāganat Purānas, were ‘Suma’ya and others.’ To one of these nameless princes then I would attribute this seal, if not to the elder Nanda Mahapadma himself, to whom the coins almost certainly belong:—for it appears from the Rajah Taringini that the younger or junior Rajas were not allowed the privilege of coining in their own names; and therefore the eight sons of Nanda, who reigned conjointly with their father can scarcely have struck any coins:—but whether the seal belongs to the father or to one of his sons, its age is not affected by the uncertainty; and we may therefore consider it as old at least as the time of Alexander the Great.

No. 23. Copper.—This seal cannot I think be more than three hundred years old, and perhaps not even so much. The inscription in modern Devanagari is *Sri Hara Deva-ji sahāya parāmanda*. The fortunate Hara Dēva, the companion of happiness.

ALEXANDER CUNNINGHAM.

Note.—A gem identical with No. 2 of the plate supplied me by Lt. Cunningham is noted by Bayer (the first investigator of Bactrian history) as No. 37 in the splendid collection of gems belonging to Martin Von Ebermayer, a wealthy merchant of Nuremberg, which he illustrated in a very erudite work under the following title:—‘*Gemmarum Affabre Sculptarum Thesaurus, quem suis sumptibus haud exiguis, nec parvo studio collegit Io. Mart. ab Ebermayer.*’ The engravings of the collection which accompany the letter press are exceedingly well executed: a copy of the work (Fol. ed. prin.) is in my possession and now lies before me. The design, from Bayer’s note upon it, would appear to have been a favorite one; he speaks of two other gems (Thes. antiq. Græc.) not dissimilar, which Angustin held to represent not *Omphale* but *Iole*, but he afterwards abandoned that opinion, and declared the figure (as did also Begero

Mode of taking facsimiles of coins.—BY VINCENT TREGGAR, ESQ.

The coin is placed between two dices of lead, and the whole compressed, either by a lever or screw, till the coin is well indented into the lead, from which latter impressions, the wax ones are made, and, being in relief, are of course far better than if taken from the coin itself.

To form the dice, a piece of plank, about one-third of an inch thick, is bored though with a centre bit somewhat smaller than the coin to be copied, it is then cut into halves, to facilitate the removal of the lead which is cast into it, the mould being placed in a piece of smooth wood, or still better, on a piece of dry brick rubbed very smooth. The bottom of the dice may not be smooth at first but will be so after a few castings have heated the brick, or it may be heated on the fire while the lead is melting. The best mould is a brass ring, the hole being bored or turned slightly conical then by merely raising it the lead falls out; it should be laid on a piece of brass nicely polished, which will give the lead a bright smooth face. A screw press is the best, but a simple lever will answer every purpose; care being taken to keep all level that the coin may sink equally into the lead, and the pressure must be removed when the edges of the lead meet or nearly so, according to the thickness of the coin. There is very little danger of injuring the coin, the lead being the softer metal, but if from any cause, the relief, for instance, on one side falling opposite a hollow or plain surface on the other, there should be a chance of deforming it, the best plan is to take each side separately, the opposite one being imbedded in sealing wax.

To obtain a perfect impression from the leaden dice they should be heated, which is most conveniently done by melting a small quantity of sealing wax* and leaving the dice on it while the wax for the impression

Thes. Palat') to be none but *Omphale*, 'accuratiore carminis *Ovidiani* consideratione inductus,' as Bayer informs us. He himself is cautious as to giving a decisive opinion, saying in his description of the gem, 'IOLE, nisi potius OMPHALE, amasia HERCULIS, cujus ea clavum, et leoninum integumentum jocose oblatum gestat.' The identity of the design could not be more satisfactorily proved than by the 'jocose oblatum' of Bayer, compared with Lt. Cunningham's similar expression. This instance of the discovery in the East of the duplicates of gems of Grecian origin extant in the West is not the only one which I shall shortly have it in my power to cite, presenting more remarkable features than those of mere identity.

A gem (No. 4, Tab. VI.) of the Ebermayer collection is also nearly identical with No. 9, of the plate before us. It represents with better execution, a crow seated on, instead of *beside* (as in No. 9), a low shrub, in exactly the same attitude as in our gem. This may represent the crow, Bayer suggests, sacred to Apollo, 'nisi rectius censuit (l. c. 19) Gronovius, quod sit *cornix ab ilice prædicens* decantata Virgilio.' The attitude and expression of the bird fully favour the ingenious suggestion, but it is singular to find a passage in the *Bucolics* Ed. IX. illustrated on a gem from Affghanistan.

* This wax can be used to heat several seals with.

is preparing, for the latter an argued lamp is the best as it does not dis-colour wax, a quantity must be dropped on a card sufficient to form the seal, and then the whole re-heated and the warm lead pressed down while the wax is very hot, but not so long as any air bubbles continue to rise, and it would be better to mix the wax with a thin bit of stick, drawing it somewhat towards the centre; the lead should not be removed until the wax is quite hard, and then, if the operation has been carefully performed the impression will be found as perfect as the coin itself. I have found the common hard yellow wax of the bazaar to take the most legible impression and would recommend the use of it in preference to any other colour.

I beg to suggest that the Society make a collection of such impressions, which would be valuable as a means of reference, particularly in the case of such coins as are taken from the country. They should not be shut up in a cabinet, but placed in frames, formed of a thick plank bored with holes of a fit size and covered with a glass front fitting close to the surface of the wood—the metal of the coin might be indicated, as in engravings, by its initial letter placed between the impressions; and the legend written above it, the whole classed and arranged in chronological order as far as possible. For the sake of uniformity the Society might decide on a particular coloured wax to be used in all impressions made for their collection, and the cards used should be left uncut, to be subsequently fitted to the holes in the frames which, of course, would be all of one size.

The Society would thus have the benefit of a large collection without any expense, and I have no doubt that every one who has a collection would gladly take the little trouble required to furnish copies of his coins. I must repeat there is no danger of harming most coins, as my friend Capt. Cunningham and myself have subjected our own to the ordeal without injury.

Report on the Soda Soils of the Barramahal. BY CAPTAIN CAMPBELL, ASSISTANT SURVEYOR GENERAL.

Soda soils are very common in the principal plain of the Baramahal in the Salem District, which is bounded on the North by the Hills of Congoondy, on the East by the Jawaudy Hills, on the South by the abrupt break in the levels at the Topoor Ghaut, and on the west by the hills of Roycottah.

In extent they are generally not more than about $\frac{1}{2}$ a mile square; the

soil is sandy and incapable of supporting vegetation, no herb growing on them, but a scanty scrubby grass. In general they lay upon a bed of Kunkur, which is sometimes, as near Paulcode, of considerable depth.

These beds of soda soil are well known to the natives, who call them in Tamul, Chour Munno—and extract the soda for the purpose of fluxing powdered white quartz to make bangles with. The Dhobees also collect the earth, and by lixivating it make a solution of soda which they use in washing clothes by adding quick lime, to make the solution caustic. But so ignorant are they in general of the principle of the mode of use, that they often convey the earth sometimes fifty miles, not being aware that the labour of carriage might be decreased by extracting the salt.

The Bangle makers extract the impure soda by mixing the earth with water in a pit, and allowing it to settle, the solution is then drawn off, and evaporated by sprinkling it on cowdung spread upon the surface of a granite rock. When the cake has become about half an inch in thickness, it is taken off and is broken into pieces, in which state it is called Chour Billah and is stored in houses for use, sometimes to the amount of 400 maunds.

The Chour Billah is sold at the rate of $17\frac{1}{2}$ Rupees per ton, and contains 23 per cent. of insoluble matter, the soluble part being in greatest part all carbonate of soda with a little vegetable and extractive matter, and some muriate and sulphate of soda in small quantity. A solution of it will not crystallize in consequence of the extractive matter, and the natives are quite ignorant of the mode of crystallizing it, and do not even know that it contains a salt.

In Bengal soda soils are also found, but according to Dr. O'Shaughnessy, (Manual of Chemistry, page 227) it contains 15 per cent. of sulphate of soda, which salt being more soluble in hot than cold water cannot be separated by crystallization from the carbonate, and the product of these soils in Bengal cannot therefore be applied to any useful purpose unless the very expensive process of decomposing the sulphate by fusion in a furnace is resorted to.

Being engaged in an extensive chemical examination of the minerals of this district in which pure carbonate of soda is required in considerable quantity as a flux, and as the price of the salt as vended in retail at Madras is very great, it has occurred to me to endeavour to supply the want from the mineral resources of the country.

I have found by experiment that a very pure carbonate of soda may be separated from the crude soda, which the soils of Barramahal yield by simply charring the Chour Billah, or the residue, after evaporating to dry-

ness in a gentle heat, by which the extractive and vegetable matters are converted into charcoal, and can then be simply extracted by filtering, and the solution will then crystallize on evaporating to a *pellicle*. The first crystallization gives a tolerably pure soda, coloured a little by the impurities, but after crystallizing 3 or 4 times the crystals are beautifully white and transparent, and after six crystallizations, the salt is so pure as hardly to give any precipitate with nitrate of silver or nitrate of barytes after supersaturation with nitric acid, denoting thereby the nearly total absence of any muriate or sulphate.

In England great quantities of carbonate of soda are required in glass making, soap making and dyeing. This was formerly prepared from the Spanish Barilla, which contains, according to Dr. Ure, muriate and sulphate of soda, lime and abumina, and only at most 24 per cent. of soda. A large quantity was also made from kelp prepared in the Scottish Isles, but this is no longer manufactured, as it has been found that in consequence of the cheap price of sulphuric acid, soda can be manufactured by decomposing the muriate of soda (common salt) at a price which remunerates the manufacturer.

In this operation the muriate is first decomposed by heating it in leaden vessels with sulphuric acid, by which the muriatic gas is driven off and which is condensed and allowed to run to waste as of no value, the demand in the arts for muriatic acid being very small. The resulting sulphate of soda is then mixed with charcoal and some lime, and is roasted by a powerful heat in a reverberatory furnace by which it is partly decomposed and formed into sulphurate of soda, which by further heat and stirring is again decomposed and the sulphur volatilized and an impure mixture of carbonate of soda ashes, and charcoal results, which is called in trade 'black balls,' and is an article of commerce.

This impure product is then further purified by solution in water, filtering, and evaporation to dryness without crystallizing, in which state it is called 'Soda Ash' and is used by the glass blowers.

The salt is still very impure, being mixed with sulphate and muriate of Soda, and does not contain its full equivalent of carbonic acid, being in fact a mixture of caustic and carbonate of soda.

For the makers of plate glass who require a very pure carbonate of soda as a flux, to prevent the chance of the glass being discoloured, the soda ash is mixed with sawdust, and is again fused in a powerful furnace, by which it is fully carbonized and rendered capable of crystallizing. It is then dissolved in water, and is crystallized once for the use of the plate glass makers, and six or seven times for the use of apothecaries. In the

latter state it is sold for 10 pence per pound retail or 52 per cent wholesale. In this state I have found by experiment that the article is exactly the same as the product before described, and the two are therefore equally valuable.

For the plate glass makers the necessity of having the flux pure is so great, that the expensive process of decomposing common salt by pearlash (carbonate of potash) is sometimes resorted to and the resulting muriate of potash being a little crystallizable, the carbonate of soda is separated by evaporation and crystallization.

The cost of manufacture from the Indian mineral soda cannot be ascertained but by extensive experiment, but as it will be seen that the process I have described, is very much the same as that in making saltpetre, the inference, that the expense will be nearly the same in both manufactures, may be allowed, and as saltpetre is made for 2 Rupees per maund, therefore it would seem that nearly pure carbonate of soda can be manufactured in South India for less than 5 Rupees per cent.

As the soils which yield this product, are now quite unproductive, and the time required for the manufacture is during the dry weather when the ryots are unemployed, the agricultural produce cannot be affected while the revenue will be certainly increased.

While the cotton trade of South India is so rapidly increasing, an article for export which will serve the purpose of dead weight for ballasting the ships will be much required, and as carbonate of soda is not affected by exposure to air or damp, it may be packed in bags and will be useful for the purpose.

As these soils are of limited extent, and as the manufacture cannot be carried on during the whole year, therefore the produce must always be limited, and the introduction of the article into the markets of England, cannot affect the present market price, because the quantity yielded in India can only take the place of a certain quantity now produced by the manufacturers of England, and the price will always therefore be regulated by that at which the English manufacturers can afford to sell.

On the introduction of the Indian Soda to the market of England the manufacturers will doubtlessly endeavour to prevent its sale by endeavouring to undersell it, even going so far as to sell their own manufacture at a loss, but as it has been shewn that the Indian Soda can be made for little more than 10 shillings per cent., it would seem impossible that the endeavour to exclude it from the English markets could be successful.

I have been unable to procure certain information regarding the price at which the inferior kinds of impure Soda are sold in England, but when the expensive and laborious process as above described, is considered, it seems almost impossible that any product can be made at so cheap a rate, as that procured by the simple manipulation required for the mineral salt.

I have endeavoured by sending to England samples through a commercial gentleman to make this report more complete, by being able to state the value of the article on certain grounds, but have been unsuccessful, the point appearing to depend in great measure on the import duty which will be charged in England. By the present regulations, natural alkali imported from places within the limits of the Honorable Company's charter pays a duty of 2 shillings per cent. but to ascertain the point it appears to be necessary to ship a few tons, and then try by experiment at what rate of duty the article will be admitted.

I am aware that some years ago attempts had been made to introduce Indian Soda into the English market, but which failed in consequence of the opposition of the English manufacturers, but I submit, that the soils now pointed out, yielding by single crystallization a pure Soda, were not before known, and in consequence, in the former experiments to which I refer, it became necessary to fuse the salt for the purpose of purifying it, which expensive process of course prevented a successful competition with the manufacturers of England.

Report on the Kaolin Earth of Mysore.—BY CAPT. J. CAMPBELL,
Assistant Surveyor General.

A great portion of the level surface of the table land of Mysore, is formed of a red ferruginous arenaceous earth, resembling much some of the softer varieties of the upper red sandstones of England.

This formation, which may be called for convenience 'Red Marle,' is superposed upon a continuous bed of hornblendic granite, and is connected with it by a graduation, both in structure and composition, through an interposed layer of white kaolin earth which is found between the two.

The kaolin is in some places several feet in thickness, and is generally of a pure white colour, and soft greasy feel, and is sometimes mixed with a fine quartzose sand in small quantity.

This kaolin is mentioned by Dr. Heyne, who mistook it for pipeclay.

The extent of this bed of kaolin I have not had an opportunity of ascertaining, but I know that it is found from Bangalore as far north as Nundydroog.

That this kaolin is fitted for the manufacture of the finer kinds of pottery and porcelain I have been able to ascertain by direct experiment, in consequence of the laborious process, and, to an individual, expensive apparatus required to grind it down to an impalpable powder, by stones of hornstone under water: but from its mineralogical characters I believe there can be little doubt of its being of finer quality than many kinds in England.

My attention was called to the mineral in consequence of being engaged in researches on the fusibility of the rocks and minerals of the Salem district, generally called igneous, in which it was necessary to expose them to a very high degree of heat, in a wind furnace sufficiently powerful to fuse cast steel, and for which I could procure no crucibles at a sufficiently cheap rate, and I have found this kaolin, when mixed with an equal quantity of finely pounded quartz, to fully answer the purpose of affording crucibles and covers, upon which the most intense heat has hardly any effect, the outside being only slightly glazed by the alkali of the fuel, and the crucible being very slightly softened. They are also much superior to those called Hessian, in not cracking, unless by very extreme changes of temperature.

In Calcutta, there are probably many manufactories carried on in the fusion of metals, &c. where this earth would be of great value, and it might even be useful in the manufacture of fire bricks, for lining furnaces, &c., if the carriage by land for 200 miles would not render them too expensive.

At Madras, at the mint for making mufles and crucibles, at the Gun Carriage manufactory, and in several other manufacturing depots, this kaolin might be useful; and a manufacture of the articles might be either established at Bangalore, or the earth itself might be transported.

Coarse Chinaware is an article of import from China, and plates of this ware are purchased in considerable quantities by some of the Natives at 4 annas each, while it is reasonable to suppose that these articles might be manufactured in Mysore at a cheap rate, without the necessity of any very expensive machinery being required.

Proceedings of the Asiatic Society, Wednesday Evening, 5th May, 1841.

THE HONORABLE SIR E. RYAN IN THE CHAIR.

Library Museum.—Calcutta Monthly Journal for March, 1841, No. 76, P.
 The Christian Observer, for May, 1841, New Series, Vol. 2d, No. 17, P.
 Annals and Magazine of Natural History, Dec. 1840, No. 37, P.
 Ochterlony's Mineralogical Report upon a portion of the Districts of Nellore, Cuddapah and Guntoor. Madras, 1841, P.
 Samlede Afghandlinger, of R. K. Rask. Kobenhaon, 1838, Tredie Del. 8vo. 1

At the meeting of the 7th of April last it was resolved to refer to the committee of papers (with reference to the offer of Mr. H. B. Koing, Bookseller at Bonn, to be entrusted with the sale of the Society's Oriental works) to consider the prices of those works and to reduce them to a scale suitable to the means of the scholars and students of Germany. Dr. Hæberlin submitted the following list exhibiting the rates at which he suggested the books should be priced, viz.

Mahābharatā, with contents	Rs. 40
Large paper, ditto ditto	„ 50
Harriwansa	„ 5
Rajah Taranginī	„ 5
Large paper	„ 8
Naishada	„ 6
Fátāwe Aleurgírī	„ 8
Ináyá	„ 8
Kházānat ul Ilim	„ 8
Jawāme ul Riazi	„ 4
Anis ul Musharrahín	„ 5
Sharaya ool Islam	„ 8
Tibetan Grammar	„ 8
Tibetan Dictionary	„ 10
Researches	„ 10

Ordered that the reduced rates be adopted and the list printed in the Journal of the Asiatic Society for guidance, that Mr. Koing's services be accepted and a selection of the Oriental Books be made and forwarded to him by the first favorable opportunity, with suitable instructions, as well as regards the disposal of the books as of the funds which may from

time to time accrue in his hands as sales are effected.

Read the following Report submitted by the Officiating Curator for the month of April last.

H. TORRENS, Esq., *Secretary Asiatic Society.*

SIR.—My report on the Museum, for the month of April, is as follows :

Geological, Mineralogical and Palæontological Department.—We continue to arrange and catalogue here at all spare times. Amongst the collections lately arranged are Capt. Hutton's valuable geological series, the fruits of his journey to the Spiti valley, to the expenses of which the Society I think contributed very liberally. The duplicates of this collection have been sent home to the Court of Directors, but we are sadly in want of the catalogue to it, were it only that of the localities. You have I believe addressed Capt. H. on this subject.

We have, at last, obtained the first of our printed catalogues from the press, and as completed copies will be placed in the cases, a part of the Palæontological collections are labelled, and of these also we shall soon have printed catalogues. Our Index, which is wanted at every turn, has not yet appeared.

Osteological Department.—We have here at length been able to place all our small skeletons in two neat glass cases. The large, skeletons have been supported by side bars to the upright supports as suggested by the Hon'ble the President, and all the skeletons have labels. We have added here the skeleton of Mr. Ewbank's Leopard, as reported in my last.

Museum of Economic Geology.—The Catalogue and arrangement of the copper series is completed.

Mammological Department.—*Reptiles, Fishes.*—Nothing new to report.

Ornithological Department.—We have here added nine new specimens, mounted, eight of which are part of Lieut. Tickell's collection, and one Faleo is from Mr. White of Midnapore.

Presentations this month have been the Gud Faleo, stuffed and mounted, from C. P. White, Esq., Midnapore.

I am, Sir, your's, very obediently,

H. PIDDINGTON,

Officiating Curator, Asiatic Society's Museum.

Museum, 30th April, 1841.

With reference to the want of a Catalogue of Captain Hutton's valuable Geological Collections of the Spiti Valley, noticed by Mr. Piddington in his

Report, it was resolved that a communication be made to that Officer for furnishing one.

The Secretary reports the receipt of a letter dated the 20th April last, from Lieut. W. I. E. Boys of the 6th Light Cavalry, offering a large collection of objects of Natural History, 'which in making had occupied almost his sole attention for the last seven years.'

'The Collection,' writes Lieut. Boys, 'has been made and the objects prepared only by myself, and I believe myself warranted in saying that nothing superior has ever been made in that line, as no expense has been spared. It consists of upwards of 350 species of Birds, the whole collected within 50 miles of Mhow Malwa, and of upwards of 200 white glass bottles containing every variety of Snakes, Scorpions, Centipedes and other reptiles, together with the fishes of different parts of India, in spirits, a quantity of Alligators and Gavialis, Boas, &c., several species of the River Turtle and Tortoises, and a superb collection of Insects.'

The whole Lieut. Boys' offers for Rs. 6,000, a sum much below their real value.

It was resolved that before coming to any final decision on Lieut. Boys' offer, that that Officer be requested to furnish a descriptive Catalogue of the collections referred to.

Read a Letter from Lt. A. Cunningham of Engineers, dated 29th April last, advising the dispatch of coins purchased from him by the Secretary for presentation to the Cabinet of the Asiatic Society. Lt. Cunningham adds, 'I have decided upon publishing as complete a work upon our Indian coins as can be made. It will take some months to complete the plates, but I have already done three of them. The 1st Vol. will contain the coins of the Bactro-Grecian, Indo-Grecian, Indo-Parthian, and Indo-Scythian Princes of Bactriana, Ariana and the Punjab. It will contain 20 Plates and about 150 pages of letter press, or perhaps 200 pages, and will I hope be ready by the 1st January next. The title of the work will be 'Coins of Alexander's successors in the East.'

In another letter that Officer also writes:—

'I have just read the only one of all my Kashmeerian coins which had hitherto baffled me. Sri Foramâ (na). Now Toramâna was the Zuvarâja (or Cæsar) in A.D. 450, and was imprisoned by his elder brother (the Augustus) for coining money in his own name; and here we have the identical coins that caused Toramâna's imprisonment and also a decided proof of the truth of the Kashmeerian history. I have the coins of 14 Rajahs, and of six Moosulman Kings, making a series of 20 Kings, the most numerous of any Indian sovereignty that has yet been discovered.'

The Secretary informed the meeting of Lt. Cunningham's having declared himself a convert to the identification of the supposed *Mayas*, held by several authorities to have been one of the early Bactrian Monarchs, with Demetrius, a position originally suggested, and maintained at some length, by the Secretary, in No. of the Journal of the Asiatic Society.

Read the following Letters, viz. From the Secretary, Political Department, Government of India, No. 1077, dated the 26th April 1841, transmitting a Report by Mr. Asst. Surg. Walker, on the Geology and Manufactures of the Hunum Koondah district of the Nizam's Dominions, for such notice as the subject may merit.

N.B.—Specimen of produce, as Indigo, &c. &c. from the province in question, have been since received. and will be submitted to the Society at their next meeting, with the Curator's report upon the objects to be submitted.

From Mr. C. P. White of Midnapore, of 19th April 1841, sending a specimen in Ornithology for the Society's Museum.

From Mr. R. Clarke, Hony. Secy. Royal Asiatic Society, London, dated 7th November 1840, acknowledging the receipt of the Journal for November and December 1839, and the Mahabharata, Vol. IV.

Read a letter from Major Thoresby, Jyepore, 5th April 1841, apprizing the dispatch of the stone at the gorge of the Teoree Ghat near Buerath, bearing the Palee Inscription in ancient characters, a copy of which was taken and forwarded to the Asiatic Society by Capt. Burt. Also some specimens of ores of the mines in the Khetree hills.

The Secretary submitted to the meeting, presented by Robert Torrens Esq., the Magistrate of the 24-Pergunnahs, a quantity of coins of the Mussulman Kings of Bengal, found by a Gang of convicts employed on the Roads at Howrah. The coins, as read by the Hon. H. T. Prinsep, Esq., are as follows :

N.B.—O. and R. stand for obverse and reverse of the coins.

No. 1. O. Alwasik bu tueed ul Rhuman abooul Moojahid Secunder Shah ibn Ulyas Shah ussooltan.

R. Yumeen ul Khuleefut Illahi Nasir ameer ul moomuneen, Oun ul islam oo ul moosulimeen; Khuladu Moolkuhoo.
(Circular legend not legible.)

No. 2. O. Ulsooltan ul adil, Ghums ood dunya oo ood deen, Aboo ul Moozuffur, Ilyas Shah ussooltan.

R. Sekunder oosanee Yumeen ul Khuleefut, Ameer ul Moomuneen.

- No. 3. O. (*broken*) Ussooltan ul adil, Aboo Moozufur Secunder Shah, Ibn Ulyas, Shah ussooltan.
 R. Yumeen Khuleefut Illahi, Nasir, Ameer ulmoomuneen, Oun il Islam oo ul mooslumeen.
- No. 4. O. Aboo ul moojabid Secunder Shah, Ibn Ilyas Shah ul Bengallee.
 R. Nasir, Ameer ul moomuneer, Oun ul Islam oo ul mooslumeen.
- No. 5. O. Julal oodunya oo uddeen, aboo ulmoozufur Mahomed Shah.
 R. Nasir, Ameer ul moomuneen Oun ul islam oo ul moosulmeen
- No. 6. Ditto to No. 5.
- No. 7. Ditto to No. 2.
- No. 8. O. Mahomed Shah. (*Togra*).
 R. The Kulma or profession of faith.
- No. 9. (*Ditto*) Mahomed Shah.
- No. 10. O. Syfooddunya oo ooddeen, aboo ul moojanid Khoosro Shah, Ibn Azim Shah, Ibn Secunder Shah, Ibn Ulyas Shah, ussooltan.
 R. Nasir, &c. &c. &c.
- No. 11. O. Shah ul Azim aboo ul Moojahid Secunder Shah, Ibn Ulyas.
 R. Ullah Nasir, Ameer ul moomuneen, Oun ul Islam.
- No. 12. O. Julal ooddunya oo ooldeen, Aboo ul Moozufur Mahomed Shah ussooltan.
 R. Nasir oo Islam oo ul moosulmeen, Khuluda Moolkao !
- No. 13. (*Too much defaced and chiseled to be legible.*)
- No. 14. O. Ulyas oodunya oo oodeen uboo ul moozufur Azim Shah, Ibn Secunder Shah, Ibn Ulyas Shah ussooltan.
 R. Nasir, &c. (as before.)
- No. 15. O. Sooltan ul adil Julal oldunya oo ooddeen aboo ul mujahid Mahomed shah ! khuladu moolkuhoo !
 R. Nasir ameer ul moomuneen, Oun ul Islam oo ulmooslimeen.
- No. 16. (*Togra like No. 8 : nearly illegible.*)
- No. 17. (*Ditto to No. 14.*)
- No. 18. O. Ghyas ooddunya, oo oodeen, ul mulik Azim, Shah oosoltan.
 R. Nasir, ameer ul moomuneen, Oun ul islam oo ul moosulmeen.
- No. 19. Ghyas ooddunya oo oolden, aboo ul moozufur Azim Shah, Ibn Secunder Shah, ibn shums coddeen.

No. 20. (*Ditto to No. 14.*)

No. 21. O. Ul mowukul bu taced ul Ruhman, Ghums ooddunya, oo ooddeen, Malik Yoozbuk ussooltan.

R. Nasir, &c. &c.

No. 22. O. Ul mooyud bu deen ul Ruhman Ghums oodunya oo ooddeen, Aboo ul moozufur Mahomed Shah Ulyas.

R. Nasir Ameer, &c. &c.

No. 23. (*Ditto to No. 11.*)

No. 24. (*Ditto to No. 14.*)

No. 25. O. Syfood dunya oo ooddeen, Aboo ul moozufur Khoosroo Shah, Ibn Aeezim Shah, Ibn Secunder Shah, Ulyas shah ulsooltan.

R. Nasir, &c. &c.

No. 26. (*Ditto to No. 5.*)

No. 27. O. (*Ditto to No. 2.*)

R. (*defaced by chiseling.*)

No. 28. O. Ul Mooyud bu taced ul Ruhman.

R. Nasir ooddeen aboo ul moojahid Mahomed Shah ussooltan

No. 29. O. Aboo ul Moojahid Sekunder Shah, Ibn ulyas Shah, ussooltan.

R. Ulla nasir Khuleefat Ameer ul Moosulmeen oun ool Islam, oo ul Moosulmeen, Khuluda Moolkuhoo.

No. 30. (*Ditto to No. 5.*)

No. 31. O. Ula ooddunya oooddeen Aboo ul Moozufur Mahomed Shah.

R. The *Kulma*.

(The *Toghra* of this coin is more legible than usual.)

Of the above numbers 8, 9, 16, 23 and 31 appear to be of Mahomed Shah afterwards King of Hindostan, who reigned A. H. 627 to 634 (A. D. 1229 to 1236.)

Numbers 2, 7, 22 and 27 are of Ulyas or Ilias Shah, who reigned from A. H. 744 to 760 (A. D. 1313 to 1353)

Numbers 1, 3, 4, 11 and 29 are coins of Secunder Shah son of Ulyas Shah, who reigned from A. H. 760 to 769 (A. D. 1358 to 1367.)

Numbers 14, 17, 18, 19, 20, 23 and 24 are of Azim Shah, son of Secunder Shah, who reigned from A. H. 769 to 775 (A. D. 1367 to 1373.)

Numbers 10 and 25 are of Syfood deen (Khoosroo Shah) son of Azim Shah, who reigned from 775 to 785 (A. D. 1373 to 1383.)

Numbers 5, 6, 12, 15, 26 and 30 are of Mahomed Shah, who reigned from A. H. 794 to 813 (A. D. 1392 to 1409.)

The coin No. 21, bearing the title of Ghias ood-deen Malik Yoozbuk would appear to belong to the king, who in the list of Pathan Monarchs of Bengal (Prinsep's Useful Tables) is noted as Ikhtiar ood-deen *Malik Yoozbuk*. the only king who bears this remarkable name. The thanks of the Society were offered to Mr. Torrens for his valuable contribution, which will be deposited in the cabinet of numismatology.

Also an old coin forwarded by Capt. Hannington, picked up in the district of Manbhoom; doubts were entertained as to the real nature of the so called coin. It is of pewter; the marks, or characters unintelligible. Further enquiry will be made on the subject, as, if it be indeed a coin, the discovery is singular, and may be ultimately highly valuable.

Read Mr. Secretary Bushby's Letter, No. 888, dated the 14th April 1841, in reply to the communication of the 12th idem, with the officiating Curator's report on the two specimens of rock, of which the following is a copy:

To H. TORRENS, ESQ., *Secy. to the Asiatic Society.*

Sir,—In reply to your letter and its enclosure of the 12th instant, I am directed to acquaint you that the Military Board will be requested to instruct the Superintendent of the Agra and Bombay road, to endeavour to procure the specimens and information suggested by the Officiating Curator of the Asiatic Society's Museum.

2d. The Right Honorable the Governor approves of Mr. Piddington's proposition to supply all officers engaged in the Survey and Construction of roads with a copy of Capt. Tremenheere's Memoir.

I am, Sir, your obedient servant,

G. W. BUSHBY,

Secretary to the Govt. of Bengal.

Fort William, 14th April, 1841.

The officiating Curator submits the following report of 17th April 1841, on the collection of minerals tendered for purchase to the Asiatic Society by Mr. Dodd.

To H. TORRENS, ESQ., *Secretary Asiatic Society.*

SIR,—With reference to the letter of Mr. Secretary Bushby on the subject of the collection of minerals tendered for purchase to the Asiatic Society by Mr. Dodd, I have the honor to report that in consequence of that gentleman's having failed as yet to transmit me his catalogue I have been obliged to make a rough one of the collection which has occasioned delay in furnishing the report.

The collection consists of about 890 specimens in all; of which about 180 may be genera and the remainder species and duplicates. The ac-

knowledge genera of minerals being about 360 in number ; Mr. Dodd's collection comprises thus about one half of the whole and generally of the most useful for reference.

With this collection and those in the Society's cabinet, we should be able to form a nearly perfect series, which is in this country a great scientific desideratum, for but few have the time, or the knowledge required to enter upon a chemical examination of a mineral, and comparison with the specimens of a well arranged cabinet will in very many cases obviate the necessity of this. The duplicates also will not be useless if (as suggested I think in one of my previous reports) they be used in the formation of ' Cabinets of Instruction' for the Hindoo, Medical and other Colleges and public establishments, whenever it may be thought proper to furnish them with such.

As far as I am acquainted with the prices of such things at home—though in this respect my knowledge is very limited, I should judge that the price asked is not excessive, and we may possibly obtain it at a cheaper rate.

I have the honor to remain,
Sir, your obedient servant,

H. PIDDINGTON.

Assistant Curator Asiatic Society.

Museum, 17th April, 1841.

Resolved that a copy of Mr. Piddington's report be submitted for the information of Government, in reply to Mr. Bushby's Letter No. 270 of the 24th March 1841.

Read a letter from Captain F. Jenkins, of 1st April 1841, requesting to be supplied with extra Copies of Lt. Tickell's papers on the 'Ho' language for comparison with the numerous languages current within the valley of Gowhatti, and to trace the dialects connected with the Tibetan stock, and the Shan branch. Captain Jenkins writes, ' that the most distinct language in all this Frontier seems to be the Garrow, as its compound and polysyllabic character appears to separate it entirely from the Eastern languages, and yet it does not appear to have the least connection with the Hindu family of languages. The Garrows are isolated from all their neighbours in regard to languages, their country is but a small one; whence they come and how they remain in so small a space, are very interesting questions ; and with them as with any others on this Frontier, the languages are likely to be entirely lost before any philologists arise to determine whence they spring. Captain Jenkins concludes his communication with some account of the Rajahs of Cachar.

Read a Letter from D. F. McLeod, Esq. of Jubbulpore, of 31st March 1841, also requesting to be supplied with Lt. Tickell's papers on the 'Ho' language. 'Not,' writes Mr. Macleod, 'from mere curiosity, but because being closely connected with Hill Tribes and greatly interested in them, I would anxiously seize upon any means of instituting a comparison between the language of our Gonds and the Hill people of other parts, and facilitating to myself or others, an insight into the rudiments of their still unknown tongue. And being not without hope of hereafter seeing one day a mission established amongst these people, I should wish much to have by me for distribution one or more copies of a brochure so admirably calculated to elicit a further enquiry.'

'With reference to his (Lt. Tickell's) most admirable paper on Ho-dès, I would mention as it may be of use, that Kôls still abound in Rewah, in our Lohâgpur mahals, and are even found at Jubbulpore and Seoni. Hence I should be disposed to presume that the term 'Kôl' was introduced by the invaders from Ruhitas, which, as far as I can call to mind, not having his paper with me, was not Tickell's impression on the subject.'

With reference to the two foregoing Letters, it was moved by Dr. Hœberlin, that they contained matters worthy of interesting enquiry and that some one of the Members composing the Committee of Papers should be requested to prosecute the enquiry to elicit information on the points alluded to by Capt. Jenkins and Mr. Macleod.

Resolved that Dr. Hœberlin's services be requested in aid of undertaking the task of prosecuting such enquiry in conjunction with Baboo Prosonocoomar Tagore.

Read a Letter from Major Burlton of the 14th April, 1841, with a collection of Bactrian Coins as a loan for the Society's museum. Major Burlton further offered the duplicates of this collection to the Society, for which courtesy as well as for his kindness in allowing the collection to be laid before the meeting, the Secretary was directed to address that officer with the expression of the thanks of the Society. The coins consisted of some silver Menanders (drach.) in excellent preservation, one of the rude silver coins usually believed to be of Euthydemus *struck at a provincial mint*, and the rest copper coins chiefly Azes and Kadphises. The barbarous provincial type of silver coin is ascertained to be of the time of Euthydemus, (authority—Lieutenant Cunningham) and is found in, or at any rate comes from, the Bokhara country.

Read a Letter and enclosure from Dr. H. H. Spry of the 5th May, 1841, of which the following is a copy.

MY DEAR TORRENS,—I have been honored by Dr. Wm. Edwards, whose celebrity as the author of more than one important Physiological work must be well known to you, with a communication relative to the establishment of a '*Société Ethnologique*' at Paris, of which I feel proud in having an opportunity of submitting an outline to the notice of the Asiatic Society of Bengal.

My distinguished friend desires to call my attention to a subject which he says he has close at his heart. He has reminded me of the fact, that he has established at Paris an Ethnological Society. It is composed of distinguished and able members, and is going on remarkably well. He then goes on to say, that his wish is to have some of the most eminent scientific men an Calcutta named as members of the Society. He desires that the names may be limited to four or five.

Directions for travellers have been drawn up and published comprising every point in Ethnology. A few copies have been forwarded and I now do myself the pleasure of placing a couple at the disposal of the Society.

Dr. Edwards alludes to three things that he is solicitous about. The possession of drawings, principally outlines, with very little shade, of the best characterized heads of the Indian races; men and women. If by any possibility casts could be taken, another great benefit would be conferred, and lastly, skulls, which Dr. Edwards hopes may without great difficulty be collected. If cases die in hospital, and opportunities occur for possessing the skull, he wishes much that a drawing of the Indian front, of the natural size, should be made in order to arrive at an accurate knowledge of the relation which existed between the skull and the features.

Dr. Edwards asks as a favor if he could be put in possession of any drawings of Indian races;—for them, he says, the Ethnological Society of Paris would feel deeply grateful.

I send you these outlines, with the hope, that by giving publicity to the objects and intentions of the Ethnological Society at Paris, through so scientific a body as the Asiatic Society, assistance may be rendered the physiologists of Paris in the pursuit in which they are engaged

You will see the particulars more in detail in the two accompanying brochures of general Instructions, which perhaps you will oblige me by laying before the Meeting of the Society to-night.

Société Ethnologique.

INSTRUCTION GÉNÉRALE ADRESSÉE AUX VOYAGEURS, ETC.

§ I.

DES CARACTÈRES PHYSIQUES.

Le point le plus important de l'éthnologie, c'est la connaissance du *type* : on ne saurait en avoir une idée suffisante sans le dessin.

1° Il faut donc dessiner les portraits de ceux que l'on veut faire connaître ; et avoir soin, pour en donner une idée complète, de représenter la tête de deux manières : de face et de profil.

2° Il convient aussi de faire une esquisse de tout le corps, et d'en bien étudier les proportions, pour savoir si elles ne présentent pas quelques particularités. Il faut surtout faire attention à la longueur du buste relativement aux membres supérieurs et inférieurs ; au creux des reins et à la saillie de la partie sous-jacente, comme dans le Nègre, le Hottentot, etc.

3° Il serait bon de prendre la mesure de la hauteur du corps, et d'évaluer sa force au dynamomètre d'une manière approximative, si l'on n'a pas cet instrument.

Il est extrêmement important d'avoir le portrait de l'homme et de la femme, car leurs types tendent à différer d'autant plus qu'on s'élève d'avantage dans l'échelle des races.

4° Toutes les fois qu'on pourra se procurer les crânes des naturels du pays, on n'en laissera pas échapper l'occasion, et on cherchera de même à obtenir des naturels qu'ils se laissent mouler leur buste.

Il y a toujours chez une nation plusieurs races ; il faut donc chercher à distinguer les types purs du produit des mélanges.

§ II.

DE LA LINGUISTIQUE.

Le point le plus important après, les caractères physiques, c'est la langue. Il est évident que si l'idiôme est cultivé, il y aura des grammaires et des dictionnaires, qu'il sera indispensable de se procurer, s'ils sont rares en Europe. Si ces ouvrages n'existent pas, il faudra y suppléer en formant deux vocabulaires ; l'un bref, l'autre plus étendu, selon le temps dont on pourra disposer. L'un contiendra les noms des objets sensibles, des idées abstraites mais usuelles ; l'autre les différentes parties du discours.

En second lieu, il conviendrait de faire une ébauche de grammaire ; de

s'occuper d'abord du verbe, en prenant les trois temps fondamentaux, le présent, le passé et le futur, avec les modifications des personnes et du nombre ; puis du substantif, avec les variations du cas et du nombre ; de faire connaître l'accord de l'adjectif avec le substantif ; les pronoms, les propositions avec un ou plusieurs régimes, et les adverbes joints à un verbe. Si l'on pouvait indiquer les rapports de la langue avec d'autres idiômes qui lui sont affiliés, ce serait un renseignement fort utile. Quel est le mode de numération en usage ?

§ III.

DE LA VIE INDIVIDUELLE ET DE FAMILLE.

Pour donner une idée des mœurs relatives à l'individu et à la famille, il convient de prendre l'homme à sa naissance et de le suivre jusqu'à la mort, en faisant connaître les actes solennels qui s'y rapportent. Ainsi, quant à la naissance, il y a peu de nations qui n'en marquent l'époque par quelque cérémonie ; il faudrait la faire connaître ; indiquer le lieu où l'on dépose l'enfant ; décrire la manière de le porter, de le vêtir, de le nourrir, de lui apprendre à marcher et à parler. Si l'on exerçait quelque compression sur la tête ou quelque autre partie du corps, il serait bon d'en faire mention,

Quand l'enfant sait marcher ou parler, quelle est son éducation domestique ; car il n'y a pas de peuple qui n'apprenne aux enfans ce qu'ils doivent savoir dans la suite.

Lorsque l'individu de l'un ou de l'autre sexe est arrivé à la puberté, y a-t-il quelque cérémonie qui le constate, et quelles sont ses occupations jusqu'à ce qu'il se marie ? Informez-vous avec soin de ce qui vous avec soin de ce qui concerne le choix d'une femme ; à quelles conditions on l'accorde, et décrivez les cérémonies du mariage. Si dans cette union il y a pluralité de femmes ou d'hommes, comment vivent-ils entre eux ? Quelles sont leurs intrigues pour favoriser leurs fils ou leurs filles, et quelle en est la conséquence pour le sort de ces derniers ? Quelle est l'autorité du père ou de la mère ? Quel est le degré de respect filial des enfans et quels sont en général les sentimens de famille ?

Faites connaître le régime alimentaire des différens membres de la société, suivant leur sexe et leur âge en indiquant : 1^o les alimens ; 2^o la manière de les préparer ; 3^o les personnes qui les apprêtent.

Quels sont les vêtemens du peuple, suivant la fortune, le rang, le sexe et l'âge de chaque individu ?

Etudiez les maladies auxquelles les deux sexes sont sujets aux diverses époques de la vie ; et les différences qui ont lieu à cet égard entre les natu-

rels du pays et les étrangers ; les rapports de ces maladies avec le climat et la manière de vivre ; les soins que les parens, les amis et les médecins donnent aux malades.

Quel est le genre d'occupation de l'homme et de la femme ? Quel est leur âge moyen, et le terme extrême auquel ils arrivent ?

Quelles sont les cérémonies qui accompagnent ou qui suivent la mort, telles l'enterrement, le deuil, ect.

Ces cérémonies diffèrent-elles pour le mari et la femme ? Quel est le sort du survivant et des enfans ?

§ IV.

DE LA VIE SOCIALE

Comme les arts ne se développent guère que par des causes sociales, nous devons les examiner ici.

1^o *Habitations, édifices, voies publiques, etc.*

Le moyen le plus sûr et le plus court de donner une idée exacte d'une habitation, c'est d'en faire le dessin ; en marquant par écrit les matériaux dont on sert. Il en est de même de tout édifice, ainsi que des meubles ou des ornemens.

Il convient de faire connaître les différentes manières d'orienter les maisons et les édifices, de les grouper pour former les villages, les bourgs, les villes, ainsi que la manière de les fortifier et de les distribuer dans le pays. Dites si les rues sont pavées ou non et comment on fait les chemins.

Faites connaître tous les autres genres de constructions, tels que les vaisseaux et les bateaux, les ports et les chantiers, les arsenaux, etc. Donnez une idée convenable des canaux, des jardins publics, ect.

2^o *Agriculture.*

Enumérez les plantes qui servent à l'alimentation, telles que les légumes, les grains et fruits ; puis à la médecine, à l'habillement, à la teinture et aux autres arts. Décrivez la manière de les cultiver, en faisant une attention particulière aux amendemens (ou substances minérales qu'on ajoute au sol), aux engrais (ou substances organiques qu'on y mêle) aux moyens de travailler la terre avec les instrumens aratoires, aux procédés d'irrigation. Dessinez les diverses races d'animaux domestiques, donnez leurs caractères distinctifs et l'usage qu'on en fait.

3^o *Tissage, fabrication de vêtemens, etc.*

Faites connaître la manière de parer les différens tissus écus ou les pelletteries servant à l'ère de fore, habillement et aux autres usages domestiques.

4° *Teinture.*

Donnez une idée suffisante de la manière de préparer les couleurs et de les appliquer.

5° *Art de travailler le bois et les métaux.*

Marquez le degré auquel les naturels sont arrivés dans ces arts. Indiquez les autres métiers exercés dans le pays.

6° *Professions. Arts libéraux.*

Distinguez les diverses classes de marchands et de négocians, les hommes de loi et les médecins, ainsi que leur genre d'études et leur manière d'exercer leur profession.

Y a-t-il des peintres, des sculpteurs, des architectes, des ingénieurs, des poètes, des orateurs et des savans ?

Notez le point auquel sont parvenus les arts et les sciences. Rapportez, autant que possible, quelques productions qui puissent nous donner une idée de la manière dont ils sont cultivés.

7° *Education publique.*

Il serait très utile d'énumérer les diverses espèces d'écoles publiques, le nombre de ceux qui les fréquentent comparé à celui de la population en âge de les suivre ; décrire le genre de leurs études, et de faire connaître les facilités ou les obstacles que rencontrent les élèves lorsqu'ils arrivent à l'exercice de leur profession.

8° *Etablissemens de bienfaisance.*

Décrivez tous les établissemens de ce genre : hôpitaux, hospices, maisons de prêts, institutions pour les aveugles, sourds-muets, etc.

Indiquez les bibliques et le genre d'ouvrages qui publiquess'y trouvent, tels que manuscrits, livres, gravures, cartes, etc.

9° *Droit public et privé.*

Un objet d'une haute importance serait d'étudier la constitution de l'état, la hiérarchie des pouvoirs, les droits respectifs des gouvernans et des gouvernés ; de faire ressortir les divers rangs de la société ; et de nous apprendre s'il y a des propriétés communes ou particulières, leur degré de sécurité, et leur mode de transmission par héritage, par vente, par donation, etc.

Comment règle-t-on les discussions qui s'élèvent à leur égard ?

Punit-on les attentats contre les personnes et contre les propriétés ?

Quels sont les crimes et les délits dont on s'occupe, les tribunaux qui en prennent connaissance, et dans quelle proportion se trouvent les criminels et les délinquans par rapport à la population.

Comment asseoit-on et lève-t-on les contributions ? Quel est le rapport entre l'impôt et la perception ?

10° *Relations sociales.*

Les rapports de la société méritent une attention particulière. Il serait bon de connaître les relations qui subsistent entre les naturels du pays et de constater s'il y a de la douceur ou de la dureté, de la probité ou de la mauvaise foi, de la sécurité ou du danger dans les liaisons.

Les sociétés des hommes et des femmes sont-elles séparées ou mêlées ?

Les sociétés des hommes et des femmes sont-elles séparées ou mêlées ?

De quelle manière reçoit-on les visites ; et qu'offret-on en pareil cas ?

Donne-t-on souvent des repas ; et qui les compose ?

Quels sont les amusemens publics, les différentes espèces de chasse et de pêche ? Comment les naturels voyagent-ils dans leurs pays, et se déplacent-ils souvent ?

Il sera bon de constater la facilité ou la difficulté que l'on rencontre à gagner sa vie, le nombre ou la proportion des indigènes ; la population respective des deux sexes, etc. ; le rapport de la mortalité aux naissances. S'il n'y a pas de documens statistiques directs, il faudrait donner les meilleures preuves de l'augmentation, de la diminution ou de l'état stationnaire de la population ; le nombre des mariés, des célibataires, des enfans légitimes et naturels, etc.

§ V.

DES RAPPORTS DES NATURELS AVEC LES PEUPLES ETRANGERS.

1° *Institutions militaires.*

Dessinez les armes, si elles ont quelque chose de particulier.

Faites connaître la manière dont on lève les armées ; et dites si elles sont permanentes ou non.

Quels en sont les grades, les exercices, la discipline ?

Quelles sont en général les causes de guerre ?

Faites savoir s'il y a quelque cérémonie par laquelle on la déclare, ou si on la fait à l'improviste ?

Quel est le genre de stratégie et de tactique suivi ?

Quels sont les rapports entre la cavalerie et l'infanterie, ou enfin entre les différentes armes ? Il faudrait dire encore s'il y a un droit des gens relatif à la guerre et au maintien de la paix ; comment on règle les alliances offensives et défensives ; comment on traite les ennemis pris à la guerre ; si on les massacre, ou s'ils sont prisonniers ou esclaves ; et dans ces deux cas, quel est leur sort pendant qu'on les conduit-aumarché et quelle est leur destinée dans la suite.

2^o *Commerce.*

Donnez un tableau aussi complet que possible des denrées que le pays fournit aux indigènes et aux peuples étrangers, et de celles qu'il en reçoit. Faites connaître les moyens de transport et les échanges soit en monnaie, soit en nature. Quels sont les établissemens qui peuvent faciliter le commerce, tels que bourse, banque, etc. Dites le nombre d'étrangers qui pénètrent dans le pays, et la manière dont ils y sont traités et comment ils en peuvent sortir ?

Quels sont les pays étrangers que les naturels visitent et les moyens de communication ?

§ VI.

DE LA RELIGION.

Quelle est l'idée que les habitants du pays se forment de Dieu et des êtres qu'ils regardent comme supérieurs à l'humanité ?

Dites ce qu'ils pensent d'une vie future, de la distribution des peines et des récompenses.

Cherchez à connaître les autres dogmes religieux.

Quelles sont les formes du culte, les différentes pratiques et cérémonies religieuses ?

Jusqu'à quel point le peuple croit-il aux dogmes ; et comment pratiquent-ils les devoirs prescrits ?

Entrez dans quelques détails sur la hiérarchie, les droits et l'influence du clergé ou de ceux qui représentent les prêtres ; et faites connaître l'action morale de la religion sur le peuple.

Décrivez les superstitions et la manière dont elles agissent sur les sociétés.

§ VII.

DES RAPPORTS DU PEUPLE AVEC LES CONDITIONS EXTERIEURES.

1^o *Sol.*

La terre est-elle plane ou montueuse ? Quelles sont les rivières, les lacs, les marais, les marécages ; et quelle est la nature géologique du terrain ? L'eau est-elle contenue dans le lit des fleuves, ou déborde-t-elle ? Y a-t-il de l'eau et des terres salées ? Dans quelle étendue se trouve la partie boisée ?

Indiquez-nous le degré de fertilité de la terre ; et dans quelle proportion se trouvent les parties productives avec les parties stériles. Donnez une indication des objets utiles, nuisibles ou curieux qui peuvent exister dans les règnes organique ou inorganique.

2° *Climat.*

Faites connaître :

1 °	{	1° La température, 2° La pression barométrique 3° La quantité de pluie,	}	moyenne et extrême	{	1° du jour.
						2° du mois.
						3° du trimestre.
						4° de l'année.

2° Les jours	{	de pluie d'orage	}	par	{	mois.
						trimestre.
						année.

3° L'intensité de lumière solaire comparée à la lumière diffuse (à l'ombre) ; succession et variation des saisons.

§ VIII.

DES TRADITIONS HISTORIQUES, REVOLUTIONS POLITIQUES ET ANTIQUITIES.

Il faudra rechercher d'abord quels sont chez un peuple les souvenirs qu'il a conservés de son origine et de ses affinités avec d'autres peuples ; quelles sont les révolutions qu'il a éprouvées dans sa langue ou dans ses mœurs, dans les arts et dans les sciences, dans sa richesse, sa puissance ou son gouvernement, par des causes internes ou des invasions étrangères.

Quelles sont les sources où l'on peut puiser les instructions demandées ?

Sont-ce des documens historiques ou des monumens de l'arts ? Dans le premier cas, ces documens sont-ils consignés dans des poèmes ou dans des ouvrages purement historiques ? Il serait fort heureux de pouvoir en donner une idée.

Dans le second cas, il sera nécessaire de donner un dessin et une description pour les parties qui l'exigent, des édifices monnaies dont on peut tirer quelque fruit pour la solution des questions proposées.

Cherchez dans les traditions mythologiques tout ce qui se rapporte à l'histoire du pays.

Quelles sont les opinions des naturels sur la cosmogonie ; quel est leur système de chronologie ; et jusqu'à quelle époque remonte-t-elle ?

N.B.—The Secretary begs to recommend the above 'Instructions' to the attention of members of the Society, whose position throws them into communications with any of the tribes and races in Central India, or on the frontiers whose distinctive characteristics are so strongly pronounced, as is generally the case with those semi-barbarous people. The consideration of these septa with reference to the several attributes as noted by Dr. Edwards, would form a highly interesting and useful study. The Secretary has been fortunate enough to recover among some papers, recently sent to the Society's rooms, an essay on the principles of Ethnology by Dr. Woods, a corresponding member of the Parisian Ethnological

Society. This is placed at the disposal of the Editor of the Journal of the Asiatic Society, for early publication.

With reference to the request of Dr. Edwards of Paris, 'for Heads of the Indian races' to serve as aid to his studies in Ethnology, the Secretary suggested a collection of Grant's 'Heads,' should be forwarded, but Dr. Spry had already anticipated him, and it was resolved to refer the Letter to Professor O'Shaughnessy to ascertain if 'Casts' were not available from the native modeller in his employ.

The Secretary informed the meeting that a 'Circular,' by desire of the Governor General, has been issued by Dr. Pearson, for contributions of subjects of Natural History for enriching the Barrackpore Menagerie, the Zoological Society and the East India Company's Museum.

The Secretary noticed that a Sanscrit work was laid by Baboo Sooruj Narain Roy before the Society. It was resolved that it be referred to Dr. Hæberlin for examination, and report of the merits of the publication in question.

For the presentations and contributions, the thanks of the Society were accorded.

NOTE.—I received too late for No. 110 the following Addenda to the paper on Arracan, by Dr. SPRY, which was published in my last.

“Since I sent you this I have heard from Captain Lumsden that his labours in sinking two shafts for Coal (Arracan) were arrested at the depth of 19 and 16 feet respectively, by the influx of water; and that there was reason to believe that at the time the operations were stopped the stratum had very nearly been pierced. It also appears that I was mistaken in believing that adequate funds are not placed at the disposal of the authorities for prosecuting Coal discovery.”

